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NOVEMBER—DECEMBER, 1956

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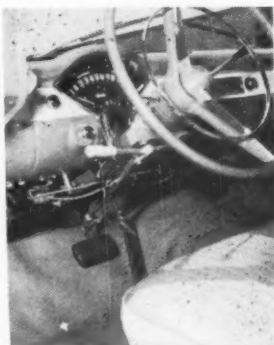
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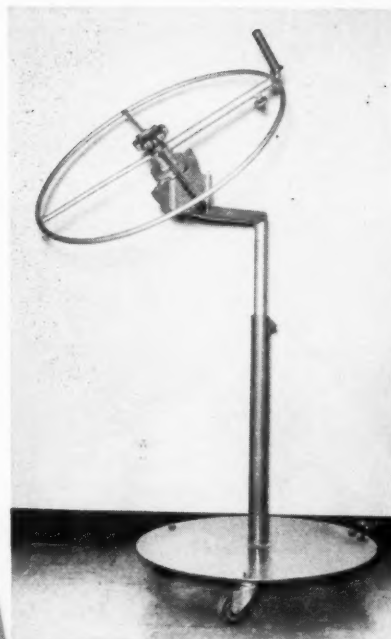
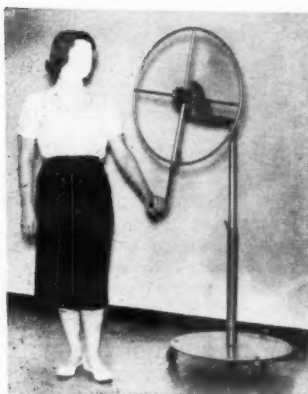
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The Journal of the Association for  
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VOLUME 10

Number 6

Published Bimonthly  
by the Association for  
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# CORRECTIVE THERAPY FOR NEUROPSYCHIATRIC PATIENTS\*

CHARLES H. REAGAN, M. D.\*\*

Physical medicine is now developing rapidly along sound lines. Adequate scientific development has been assured by the establishment of numerous research centers in many of the larger and finer schools. Proper development of the art of physical medicine has given us much experience in the field of occupational therapy, physical therapy and physical reconditioning and recreation or, as it is called today, corrective therapy. So all these types of physical medicine mentioned are assuring the specialty its proper place in relation to the practice and art of medicine as a whole.

Corrective therapy has become one of the most important agents in physical medicine. It has been used extensively in a great variety of ailments—both physical and mental—in the past. The present trend is toward reconditioning the sick, disabled and especially the neuropsychiatric cases. Certainly this was brought out in the Armed Forces during past world wars. The future of corrective therapy is bright.

The proper use of corrective therapy requires specialized knowledge. There has been a tendency for us M.D.'s to assume too much, but we must combine the technically trained person's knowledge with the medical knowledge in order to use corrective therapy properly and gain better results. Obviously the M.D. understands:

1. Increased circulation.
2. Increased muscle strength.
3. Prevention of muscle atrophy.
4. Prevention of decalcification.
5. Maintaining range of motion.
6. Helping re-establish former patterns of motion or establishing new patterns of motion in various lesions of central nervous and musculo-skeletal systems.

To properly prescribe corrective exercise requires the ability to recognize malfunction and even the mental thinking of the neuropsychiatric patient. We must have an idea what to expect and to anticipate the reaction of the patient. We must be able to judge types of corrective exercise, when to begin and when

to discontinue, and to be alert to signs of depression and aggression.

Corrective therapy is one of the disciplines working in the realm of physical activation rather than verbalization. We have all learned that we experience a marked sense of well-being through physical activity. One of the general aims of the psychiatrist is to bring about changes in the social attitudes of his patients. A patient in a corrective therapy activity is more susceptible to such desirable changes. To whatever extent the schizophrenic patient has regressed, the corrective therapist can adapt a physical activity through which he can find expression.<sup>1</sup> The value of this facility will be left to the determination of the experimenters in psychiatry, but it is sufficient in our hospital of 900 beds to keep four corrective therapists busy.

I should like to point out a few principles of treatment expounded by Strecker and adopted by corrective therapists in the treatment of psychotic patients: The therapist may be substituted for the wife, or husband, or family. The attitude of the therapist is strictly impersonal, objective and unemotional. While offering activity acceptable to the regressed segments of the personality, the therapist, from the beginning, declines to deal with anything but the mature segment.<sup>2</sup>

One authority<sup>3</sup> has condensed the objectives of all therapy into two techniques: "(1) render that which is neurotic no longer necessary or advantageous to the patient, and (2) help him to learn other ways of life that will prove (a) more roundly enjoyable; (b) more profitable to him in the long run; and (c) more socially acceptable and constructive." That these processes can be expedited by the corrective therapist, with or without specific and detailed prescriptions from the psychiatrist, should be obvious to all who are familiar with the concept of corrective therapy.

A patient quite often communicates feelings and character traits through physical activity which

\*Presented at the Tenth Annual Conference, The Association for Physical and Mental Rehabilitation, Augusta, Ga., June 28, 1956.

\*\*Chief, Physical Medicine and Rehabilitation Service, Veterans Administration Hospital, Tuscaloosa, Ala.

<sup>1</sup>John N. Rosen, The Survival Function in Schizophrenia, *Bull. of the Menninger Clinic*, 14:3:81-91, May 1950.

<sup>2</sup>Edward A. Strecker, *Fundamentals of Psychiatry*, Philadelphia: J. B. Lippincott, Co., 1945, p. 86-87.

<sup>3</sup>Jules H. Masserman, An Integration of Group Therapeutic Techniques, *Veterans Admin. Tech. Bull.* 10-53, Feb. 1954.

he conceals completely through all other means of expression. Fromm-Reichman was able, by this means, to bring to light homosexuality in a patient who had successfully concealed this fact from the psychiatrist up to that time.<sup>4</sup>

Permissiveness in the corrective therapy situation is to be highly encouraged, but there are a few contaminants that should be well guarded against. The therapist must be careful that his permissive attitude is not mistaken for "sanction." Much harm can be done the patient if the therapist allows, or shows by his behaviour, that he approves of conduct that is not socially acceptable. The therapist must not encourage non-therapeutic behaviour on the part of the patient just because it happens to satisfy his own (the therapist's) needs. This is easy enough to say, and obtain agreement to, but it is one of the hardest things to get the therapist to recognize. Another caution to avoid is that of allowing submissiveness and indifference in the name of "permissiveness."<sup>5</sup>

The corrective therapist accepts the physical aspect of exercise as simply the framework providing the basis for the mechanics of the procedure. He is concerned with psychological effects of exercise and activity upon the patient. He accepts the evidence of Harvard University studies pointing to a close parallel between behavior disorders and psychomotor organization.<sup>6</sup> Although primarily useful in treating physical illnesses, Hettinger and Muller's experiments<sup>7</sup> have implications for the corrective therapy treatment of neuropsychiatric patients. From time to time there are patients who can be indirectly helped by this rapid method of muscle strengthening. We think of corrective therapy as one of the newer disciplines in physical medicine,—and so it is. But the principle of exercise in prevention and treatment of illness is as old as the oldest record of Chinese and Greek Culture. It was not until the late 18th Century that exercise as we know it today was put upon a scientific basis. Ling, of Sweden, developed a system of free movements upon which all others are based. He founded the first college of curative gymnastics, The Royal Gymnastic Central Institute of Stockholm, in 1813. Zander, also of Sweden, devised a number of exercise machines in an attempt to improve upon the Ling system. His primary purpose seems to have been to eliminate the necessity of employing a gymnast, or as we call him, a corrective therapist. The idea did not gain wide acceptance, but Ling's system was later improved by Bukh, of Copenhagen, by substituting rhythmic movements for the rigid attitudes originally employed.<sup>8</sup>

I think we all agree that corrective therapy is an accepted discipline of the rehabilitation team, and

further that rehabilitation begins with the onset of illness. We are also agreed that a prescription from the physician is necessary before any treatment can be administered. We go further and insist that the prescription for corrective therapy for neuropsychiatric patients gives the nature of illness, pre-disposing factors, character traits, psychological needs, specific objectives to be accomplished by corrective therapy, etc. This latter insistence gets us into conflict with our concept of early treatment of neuropsychiatric patients by corrective therapy, because many of our prescriptions for corrective therapy for such patients are very general and vague about objectives. If you have never had this conflict, much of the remainder of this paper may be of little interest to you.

The value of corrective therapy for the acute neuropsychiatric patient has been very well established.<sup>9</sup> Is it not possible that in every general prescription for corrective therapy for these patients, that there are several possible objectives which are un-written, but are nonetheless applicable to all such patients? The shortage of psychiatrists imposes on us the responsibility of accepting such objectives, providing physical activities for their accomplishment, and reporting by progress notes our close observations of any behaviour that might prove helpful to the psychiatrist in understanding his patient and planning a better treatment regimen. Let us attempt to identify some of these possible objectives on which we can all agree as suitable for patients for whom a more exact prescription has not been made:

a. *Improvement or maintenance of general physical condition.* The corrective therapist has discovered in his early personal experience, a certain sense of healthfulness through physical activity. Anyone engaged in physical activity has the quality of feeling alive, confident and at times aggressive.<sup>10</sup> Certainly, the improvement or maintenance of general physical condition is an acceptable general objective and one that can be accomplished in varying degrees by the corrective therapist.

b. *Physical relaxation following exercise.* This is certainly an acceptable objective in the absence of stated

<sup>4</sup>Frieda Fromm-Reichmann, *Principles of Intensive Psychotherapy*, Chicago: Univ. of Chicago Press, 1950, p. 93-94.

<sup>5</sup>Richard V. Freeman, Contaminants of Permissiveness in Hospital Care, *Am. J. of Psychiatry*, 3:1, July 1954.

<sup>6</sup>John E. Davis, History of the Profession of Corrective Therapy, *J. Assn. Phys. Ment. Rehab.*, 10:2:44, March 1956.

<sup>7</sup>C. H. McCloy, Something New Has Been Added, *J. Assn. Phys. Ment. Rehab.*, 9:1:3, Jan. 1955.

<sup>8</sup>Richard Kovacs, *A Manual of Physical Therapy*, Philadelphia: Lea & Febiger, 1949, p. 23-24.

<sup>9</sup>Lucy Ozarin, Corrective Therapy in the Psychiatric Hospital, *J. Assn. Phys. Ment. Rehab.*, 4:3:3, May 1951.

<sup>10</sup>John E. Davis, The Corrective Therapy Individual and Group Approach to the Psychiatric Patient, *Veterans Admin. Information Bull.* 10-55, April 1954.



contraindications. We would expect relaxation following physical exercise, but it does not always occur with our neuropsychiatric patients. When it does not occur it is surely worth noting on the progress notes, especially if the exercise has been quite vigorous, such as hydrogymnastics.<sup>11</sup> It is just as important to observe and report failure to obtain objectives as it is success. Perhaps in this case it is even more important.

*c. Provide Resocialization Activities.* With the onset of mental disease, the psychic forces lose their cohesiveness and personality disorganization results. Disintegration and disorganization of the personality is evidenced by distortion of reality with resultant delusions and hallucinations. Such a patient needs reeducation and resocialization.<sup>12</sup> The corrective therapist intrudes himself graciously into the patient's pre-occupational domain. A relationship is developed between therapist and patient which is the beginning of resocialization and there may be effected considerable transference. Thus regressive forces are dissipated and beginnings are made toward reality situations.

*d. Develop in patient a susceptibility to changes in social attitudes.* In any neuropsychiatric patient, some change in social attitudes is always desirable. According to Davis<sup>10</sup> an individual in activity may be more susceptible to changes in social attitudes. This is partially explained by the fact that in schizophrenic illness there is considerable variation in the normality of response between the verbal and non-verbal levels. The deprivations of the illness has affected the patient's ability to deal intelligently with concepts and symbols, but has left the motor field fairly intact. It is through the motor field that the therapist may find acceptable areas of expression and thus pave the way to development of susceptibility to changes in social attitudes.

*e. Provide reality — testing experiences which will gain acceptance for the patient.* Obviously, all experiences provided for the patient in corrective therapy can be used by him for testing reality. The important thing is for the therapist to accept the patient's behavior and to note the degree of satisfaction (or lack of satisfaction) the patient derives from such acceptance.<sup>13</sup> If we are to successfully provide these experiences, we must consistently practice consistency, not only in our day-to-day presence, but in our attitude, manner, expression and manner of rewarding.

*f. Encourage re-establishment of contact with reality.* What neuropsychiatric patient has not lost some contact with, or retreated from, reality? Perhaps some, but certainly most of our patients fall into that category. The nature of hospitalization itself, with its impact of a restrictive environment upon a disordered

personality, removes further the need for any initiative from the patient. He lives on the ward, for the first few days at least, in a motivational vacuum. The bases of motivation, reward and punishment, diminish or disappear. In other words the psychological retreat is enhanced in all directions by the usual hospital care. Corrective therapists can counteract these un-therapeutic situations by immediately offering acceptable, social, exercise activities where non-threatening choices can be made and reward or punishment for winning or losing the game is easy to accept. Is it any wonder that the psychiatrist wants to send the patient to corrective therapy before he has even arrived at a diagnosis, much less formulated a treatment regime with well structured objectives and rehabilitation goals?<sup>14</sup>

The acceptance of such general treatment objectives (whether written or unwritten) should in no way minimize the importance or emphasis upon more specific objectives when prescribed. Quite often the psychiatrist will indicate certain character traits of the patient for which he wishes some relief afforded by the corrective therapist. In regression, the patient has gone back to a level below that of a mentally healthy adult, and thus does things that are normally seen in a child. In such cases the therapist should start an activity at the patient's level and then gradually attempt to raise the level and standards.

Some patients have destructive character traits and feel the need to destroy or harm something—clothing, furniture, people, or other objects. Exercise activities will be adapted to meet these needs when such relief has been prescribed. Other patients have a strong feminine identification. They have little interest in sports or other of the more masculine pursuits. They may long to participate in more male pursuits, but at the same time fear to do so. Complying with the prescription, the corrective therapist can offer such patients support in their efforts to develop masculine interests in a manner which will not cause further conflict. Relief from both dependency character traits and traits of independence can be afforded by the corrective therapist often by using the same exercise activities, but with, of course, an entirely different approach to each. Expiation of guilt can

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<sup>11</sup>Robert Kramer and Robert Bauer, Behavioral Effects of Hydrogymnastics, *J. Assn. Phys. Ment. Rehab.*, 9:1:10, Jan. 1955.

<sup>12</sup>Jay M. Namen and Richard Hall, Psychodynamics in Rehabilitation, *Veterans Admin. Information Bull.* 10-71, Jan. 1955.

<sup>13</sup>Francis M. Marusak, The Application of Activity Therapy Techniques for the Chronic, Regressed Psychotic Patient, *J. Assn. Phys. Ment. Rehab.* 7:6:205, Nov. 1953.

<sup>14</sup>Abraham Myerson, Theory and Practice of the Total Push Method in the Treatment of Chronic Schizophrenia, *Am. J. of Psychiatry* 95:5, March 1939.



# CORRECTIVE THERAPY IN THE TREATMENT OF CARDIAC CASES\*

J. G. BOHORFOUSH, M. D.\*\*

To have spoken of corrective therapy in heart disease ten years ago would have sounded ridiculous. During this period, there has been a fortunate change of philosophy in the treatment of cardiacs. We now stress the capabilities of the patient and not the restrictions. Reflect for a moment on the importance of this. It is a change from a negative to a positive attitude, from a semi-despairing one to a hopeful one, from a "you cannot to one of you can." My entire thesis is this one single thought, and we feel that 75% of cardiac patients now invalid can be rehabilitated to some degree of usefulness. Motivation is the one important ingredient that must be present if we expect any good results.

The diagnosis of heart disease always carries an all pervading fear. This fear is far more difficult to treat than the actual disease itself. We know the drugs to use, the medical means available to combat the disease, but the overcoming of the fear of heart disease is the most difficult task in all of medicine.

What is heart disease? That seems a very simple question to answer, but a little reflection makes one realize that there are many complicating and extraneous factors to consider. We know that there are heart diseases secondary to other conditions, that there are conditions that we consider heart disease per se that are caused by other factors, and there is the emotional condition causing cardiac symptoms when there is no disease at all.

## *Neurosis Manifested By Heart Symptoms*

Does the person suffering from a neurotic condition manifested by heart symptoms have less disability than a person who has organic heart disease? In a great number of cases, the disability is far greater than that produced by organic disease. The iatrogenic heart disease (that produced by the physician by misdiagnosis, by his demeanor, inappropriate words or indecision) can be far more disabling than organic heart disease. I know of no condition where the combined efforts of the physician and the physiatrist can accomplish more. Those who are disabled from emotional disability are so disabled because they have something to gain from their condition. Regardless of the popular newspaper and magazine experts, these

people are not organically ill, and they must be made to realize that they are not ill. I will enter into the controversy of the causation of neurosis—I can find no really satisfactory answer. But there is one outstanding fact; these people are ill because of the will to be sick. How much of it is subconscious I don't know, but I personally do not believe that it is quite so subconscious as present theory would wish us to believe. These people are ill because they gain something by being ill. While I will admit that there are some few people in whom the neurosis is deep and beyond their ability to handle, I believe that most of what we call neurosis is really a personality defect with the use of illness to cover the defect.

It may seem that I have digressed far from heart disease, but it is important to realize that these people can help themselves and not waste too much sympathy. In fact, that is what they are asking for, and to give it to them is an aggravating factor.

The patient with cardiac neurosis, whether due to a basis emotional weakness or iatrogenic in origin, must be thoroughly examined and positively told that he has no heart disease. Here the physiatrist, psychiatrist, and internist must understand each other and work together. In fact, in no other fields is it so important for them to do so. They both must act with absolute assurance that the patient has no heart disease. They must ignore with stony indifference any complaint referred to the heart. The slightest doubt on the part of either will nullify all results to be expected. Here the therapist must carry on exercise to the point of physiological pain without faltering and ignore the complaints of the patient. This must be done in gradual stages, but it must be done. The internist and psychiatrist must support the therapist by their demeanor, acts, and words.

## *The Valvular Heart Diseases*

In adults, the most common causes of injury to the valve are rheumatic fever, syphilis, and arteriosclerosis. The treatment of the rheumatic heart is divided into two phases—one, the period of acute rheumatic fever and secondly the treatment of established valvular disease when the activity has ceased. I do not believe that every person that has rheumatic disease should be treated alike. During the acute phases, the physiatrist has certain definite functions—the prevention of pulmonary emboli by the judicious use of massage, etc., the prevention of the freezing of joints, es-

\*Presented at the Tenth Annual Conference, The Association for Physical and Mental Rehabilitation, Augusta, Ga., June 28, 1956.

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pecially the shoulder, and the prevention of atrophy of muscles in anticipation of the time when the patient will be able to be active again.

I was taught that a patient with active rheumatic fever should not be permitted even to feed himself, and he should be kept in bed for six months. Many of the most celebrated authorities on the subject still believe this. I just do not believe that the effort necessary to keep the patient in good shape, to prevent emboli, etc., places enough strain on the heart to make any difference. If the myocardium is weakened it is due to the disease process itself, and we just fool ourselves when we think that a minimum of activity makes any difference. I wonder if the mental turmoil of having to lie still day after day, brooding over a possible overwhelming tragedy that may not occur does not do more damage to the patient than the amount of physical activity necessary for the proper care of the patient. Again we see the positive, hopeful approach, looking to the future in contrast to the gloomy, catastrophic, depressing atmosphere created by unwarranted timidity. Until we really know more about the treatment of rheumatic fever, I certainly am not going to concede that the method of treatment that will disable a healthy man is going to cure the disease. When the rheumatic disease has become inactive and we have been fortunate enough not to have a valvular heart disease, act as if the patient does not have heart disease, do not hold the threat of recurrent disease over his head. I do not mean that he should not be told of the necessary precautions and prophylaxis that are necessary, but again, the fear of heart disease should be overcome by demonstrating his capabilities and bringing him through judicious therapy to complete physical development. He does not have heart disease, and do not treat him as if he has.

A difficult diagnostic problem is the assessment of a systolic murmur heard after rheumatic disease. It can mean valvular heart disease, or it can just be another murmur. Make a careful evaluation for a period of time, including teleroentgenograms. EKG's, and careful physical examination periodically. Too long a time must not elapse before a definite decision as to the significance of the murmur is made. Here a bold but not reckless decision must be made, and it is frequently the better part of valor to ask for advice. If the patient does not have heart disease, he must be told so and treated accordingly. It is the part of cowardice to shield oneself behind a diagnosis of possible heart disease and condemn a fellow man to the terror and limitations of one with organic heart disease. No matter how difficult the decision, it must be faced truthfully and correctly.

The diagnosis of rheumatic valvular heart disease

is not necessarily a sentence to the wheelchair. The individual evaluation of the patient is most important. Some cases of rheumatic heart disease progress inexorably downward to death, others lead a completely unrestricted life to a ripe old age. The physician must decide the capabilities of the patient, and there is no person better qualified to assist him in this decision than the physician qualified in physical medicine—here they should work as a team. Again a positive approach should be taken, and the therapists should, by demonstrating the capabilities of the patient, overcome the fear of heart disease, and start him on his way to a useful and happy life. At the hospital at the present time we have a young lady; if you look only at her X-ray and EKG you would be afraid that she had little time to live. Yet, three years ago, to the astonishment of some of my colleagues, I recommended her for an important position. She does a full day's work of at least 8 hours, is married and cares for her home. She is intelligent enough to know her limitations, but what is far more important, she knows her capabilities. We have another young lady who has typical mitral stenosis, who works 8 hours a day as a ward attendant, helps her husband through the university, is caring for her home and three children, whom she bore after knowing she had heart disease. I cannot think of a more trying situation, yet in the five years I have known her and by examinations available to us, can we say that her condition has worsened?

Being a congenital optimist, I cannot say I approve of the dire propaganda that spills over the channel of communications to the general public. The treatment of heart disease is an individual question between the patient and his physician, and the fear engendered by such means makes a difficult task more difficult.

Syphilitic heart disease usually involves the aortic valve, and the life of the patient after diagnosis is made is very short. To be blunt, outside of treating the basic disease, there is little that can be done. With the advent of penicillin, the problem is one of eradicating syphilis, which can be accomplished in a few years when we decide to do it.

Stenosis of the aortic valve due to arteriosclerosis is a relatively benign condition, and again the role of the therapist is to determine the capabilities of the patient and overcome the fear of the diagnosis of heart disease.

Of congenital heart disease I know little, but with the advent of surgical corrective means, the role of physical medicine should become a prime factor in the final result to be obtained in each case.

#### *Hypertension*

We now turn our attention to hypertensive heart

disease. Before we progress further, I would like to divide hypertension into two categories—one, the so-called malignant hypertension and the other the so-called benign hypertension. The malignant hypertension is by definition a relentless disease, requiring heroic medical methods, powerful drugs, and if possible the treatment of the underlying cause, with resort to sympathectomy if necessary (even more radical intervention is advocated by some). Here physical medicine is more concerned with teaching the patient to relax by physical means and the rehabilitation after surgery. The benign hypertension is probably a physiological response to the need of the body for more blood or blood under a higher pressure; for example, in obesity in the first case, and in kidney disease in the second. The treatment in the first is correction of the obesity and in the kidney disease, it must be determined whether it is wise to reduce the blood pressure at all, for by doing so we may precipitate a far more serious condition than the hypertension. Here again the therapists must teach relaxation methods, at the same time not ignoring the physical condition of the patient. These people must not be made invalids because of their hypertension. One of the most important things is to keep the muscles in good shape. Consider the individual in good shape—how little does he call upon his heart to do a given task—then consider the flabby individual and how difficult the smallest task is for him. Smooth acting, well conditioned muscles by their efficiency spare the heart. I do not mean to make these people athletes, but they should be in good physical shape.

#### *The Aging Heart, Including Myocardial Infarction*

As most individuals grow old, they develop arteriosclerosis and all of its complications. One of the most catastrophic is myocardial infarction. When I am asked when corrective therapy begins in these patients, I answer, "As soon as possible, even when they are in the oxygen tent and are just out of shock." This may surprise you, but there are many things that can be done to hasten recovery. In myocardial infarction, as with any other disease where the patient is immobilized for any period of time, it is important to prevent frozen shoulders and pulmonary emboli, and the best method is by physical means. You don't prevent frozen shoulders a week after the patient is in bed. He has it by that time. Full movement of the shoulders and joints should be carried out periodically during the day. Passive massage and movement of the legs to prevent emboli of the lung in the elderly is one of the most important things that we can do for these people. When the patient is ready to resume activity, here physical therapy is of the first importance. The fear of another attack is so dreaded that if a positive at-

titude is not taken, the patient is likely to become an invalid. We are fairly certain that physical activity is not the only, nor even of prime importance in myocardial infarction; the mental strain may be and probably is of far more importance. We then begin a program to demonstrate and bring out the full physical potential of the individual. This is usually far more than we think at first. It is not unusual for a patient after suffering an infarction of the heart to be able to play 18 holes of golf if not pressed, and can play the game for pleasure and not for score. It is of the utmost importance that these people be taught to relax by physical means.

The unvarnished fact is that in the white race this is a disease of males, while in the Negro there is no sex difference. The white male is probably the most frustrated animal in captivity today. He is expected to live up to a standard that may be far beyond his talents. Being a romantic creature, he is unable to understand the darling, romantic woman whom he has married and put on a pedestal being the tough, practical creature she is. To him romance is romance for its own sake; for her a higher place on the pedestal with all her whims satisfied. To his children he becomes the old man who brings home the money. His culture does not permit him to protest, and in the end he is the drudge whose only way to express his masculinity is by fighting down all masculine opposition—not an easy task and a most frustrating one. The person who said that this is a man's world was a fool. The conspiracy of the times makes this the era of the myocardial infarction in the white male. So, when you teach him to relax you must point out to his spouse that it is part of the treatment.

As we all must age, we should learn to do it gracefully. We must continue to participate in the activities of the world to the extent of our abilities. A routine of stimulating exercises, e.g., a brisk walk, etc., is indeed necessary to our survival. Where the aging heart may survive a tranquil, restful environment, it will give way rapidly to stress.

As one ages, the myocardium becomes infiltrated with fat, especially in those who are sedentary and who take no exercise. Leonardo da Vinci said, "Iron rusts from disuse, stagnant water loses its purity, and in cold weather becomes frozen; even so does inaction sap the vigors of the mind." There is nothing more conducive to illness than self-imposed invalidism not warranted by the person's condition. It is necessary that the aged continue to play a role compatible with their ability, and it is important that we teach them to adjust to conditions of reality and actuality. It does not behoove us to permit these people to become inva-

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# SPECIFIC PROGRESSIVE EXERCISE AS A MASS TECHNIQUE FOR PREVENTIVE CONDITIONING AND REDUCTION OF KNEE INJURY POTENTIAL IN ATHLETICS

KARL K. KLEIN\*

## Introduction

Evidence presented by annual athletic injury reports indicates that the scientific development of protective equipment for players has resulted in a major reduction in the incidence of injuries in all areas except that of the knee. As a basic evaluation it might be stated that the only way for effective equipment to protect the knee from injury potential would be to stabilize it in a locked position. This, of course, is highly impractical when dealing with the mobile situation of athletics where the ability to react and move quickly is of prime importance. It seems then that knee protection must be dependent upon other qualities than those derived from such stabilization. These qualities are potentially present in everyone and have to do with the strength and endurance of the muscles supporting the knee from above and below the joint.

Today there are methods of progressive resistive exercises that are accepted as a vital part of the rehabilitation program and are used extensively in restorative treatment. These same methods, with additional modifications of acceptable weight lifting techniques, could also be utilized effectively in the pre-and preventive phase of conditioning *but for the drawbacks related to the problem of time, administration and individualized program planning* that would be necessarily involved with a squad of thirty or forty players. Although this problem should be of major concern to the trainer and coach, it is impractical to assume that it would be feasible to set up such a program for the average size squad. Still the problem remains so that it is necessary to seek mass exercise methods that would be administratively sound in such items as (1) ease of technique and application; (2) time saving consideration; (3) progressive resistive styling; (4) minimum of equipment; and (5) proved experimental test application and results.

An extensive review of the literature from 1930 to the present indicates that the problem of knee injury is one of considerable magnitude. This is substantiated by the latest composite report published

by the National Athletic Trainer Association.<sup>1</sup> This report represents injury data from approximately sixty-five colleges and universities, and places knee injury as the Number One enemy of football and athletics in general. Numerous authors<sup>2-4</sup> concur as to the values of specific exercise for injury prevention, but few have outlined specific procedures for accomplishing the desired goals of massive muscular strength and power for reducing the medial and lateral hinging effect which is largely responsible for medial and lateral ligament, and cartilage problems. There is also an apparent lack of emphasis on the importance of muscular flexibility as an important phase of the conditioning effort which should go hand in hand with the strength and power building program. In this phase of the program simple muscular stretching movements following the exercise period will maintain elasticity and flexibility thus enabling the musculature to operate at its maximum efficiency. Undoubtedly, the question of the relationship of ligament strength as a preventive factor in knee injury will be considered by those who are looking at the knee structure and its support in total function. Although there are pros and cons to the issue, it should be recognized that:

- (1) As related structures are strengthened, it is practical to assume that ligament structures will react in the same manner provided they are not over-stretched in the process. (Duck Waddles, etc.)
- (2) That the best protection for the ligaments is muscular strength.<sup>5</sup>
- (3) That, as the knee is flexed, the ligaments start into a decontracting relationship and therefore offer a lessening protective effect as the knee becomes more functional through motion. *When the knee is*

<sup>1</sup>N.A.T.A. 1952 Football Injury Survey, National Athletic Training Association.

<sup>2</sup>Bilik, S.E., *The New Trainers' Bible*, New York: T. J. Reed & Co., 1948, Ch. 12.

<sup>3</sup>Lewin, P.E., *The Knee and Related Structures*, Philadelphia: Lea and Febiger, 1952, Ch. 3.

<sup>4</sup>Lloyd, F.S., Deaver, G.G., and Eastwood, F.R., *Safety in Athletics: The Prevention and Treatment of Athletic Injuries*, W.B. Saunders Co., 1936, Ch. 10.

<sup>5</sup>Lloyd, F.S., Deaver, G.G. and Eastwood, loc. cit., Ch. 3.

<sup>6</sup>Lewin, P.S., loc. cit.

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flexed to its mid-position\*, all the ligaments are in a phase of equal relaxation and it may be concluded that they offer a *minimum* of protection against injury at this point. In fact, we might visualize the protective qualities of the muscular structures at this angle and basically assume that major protection in this position is placed on the hamstrings because of the decontracting phase of the quadriceps.

In the problem of specific conditioning of the muscular groups in question it must be recognized that they are representative of a large portion of the bodily strength. In order that the exercise technique have the relative value as applied in Progressive Resistive Exercise, some of the following points should be considered: (1) the muscle groups have to be placed under progressive stress; (2) the exercise should have some semblance of individual prescription; (3) the exercise should be resistive enough to include the strength and power areas of development as well as to consider endurance qualities; (4) the exercise should be able to develop the desired qualities of strength and power at a rapid rate so that the protective qualities may be developed early in or previous to the competitive season.

Coulthard<sup>7</sup> sums up the problem very aptly by emphasizing strong musculature for injury prevention by demonstrating that the joint is more firmly bound together and that the lateral movement is reduced. He states further that good muscle tone will tend to lessen injury when a player who is relaxed is contacted bodily on the field.

Varying methods have been used to produce the fundamental objectives of Progressive Resistive Exercise which necessitates the progressive increasing of the weight load against which the musculature has to work. Such weight load and action might be:

- (1) The exertion of the muscular contractile action against a static object.
- (2) Movement against a spring scale or other spring resistance.
- (3) Movement against the forceful resistance of another person.<sup>8</sup>
- (4) Movement against a person's own body weight with the use of varying angles of action to increase muscular resistance load.

In consideration of this latter (fourth) concept, the remainder of this article will be devoted to the technique, apparatus, and administrative items which demonstrate how the bench technique of exercise meets the requirements as listed above.

#### *Development of the bench technique of exercise*

The original development of the techniques (Fig. 1) was devised in 1945 by this writer while in military service rehabilitation work and was used as a part of the total reconditioning of post-operative knee con-

ditions. The reconditioning results obtained seemed to meet the developmental needs of the large number of patients participating in the program. From 1946 until 1952 the technique was continued in use with other areas of progressive resistive programming. Early in 1954, this technique was compared experimentally with another body resistive exercise for its ability to increase strength development of the thigh musculature supporting the knee. The research was conducted by Sales and Grimm<sup>9</sup> in collaboration with the writer, who conducted a similar study in May 1956. The strength increases were very revealing in light of the actual measured minutes of exercise done by the test group\* during the one month exercise period. The bench technique gave a higher percentage of total strength gain of the muscular groups tested: quadriceps at angle of maximum strength, quadriceps at terminal extension for vastus medialis influence and hamstrings at angle of maximum strength. The subjects used in the experiment were physical education majors; none were varsity football players.

Additional comparison was made with the average of a group of one hundred college and university football players measured the previous fall during early season practice by using the same testing technique. Although the test groups were much below the average football players' strength level at the beginning of the testing period, at the end of the month's testing period, the experimental group's muscular strength score (and assumed muscular protective qualities) exceeded the football group in average measurements. The evidence gathered in this study indicated the future values of the technique as a strength building exercise method as well as a protective device and can be recommended on the basis of the experimental results obtained.

Due to the specific muscular action involved in the exercise, both the quadriceps and hamstrings are brought into contraction in the single movement. In the experimental work the hamstring muscular strength gains were greater than the terminal extension measures of the vastus medialis.

#### *Strength and Strength Loss Due to Various Phases of Conditioning*

Before setting down the suggestions for carrying out each day's program it is important that some fun-

\*Springfield College and University of Texas physical education students.

<sup>7</sup>Coulthard, A.L., *Football Conditioning*, *Athletic Journal*, 33:9, May 1953.

<sup>8</sup>Personal correspondence with Dr. Frank Sills, Department of Physical Education, State University of Iowa on methods of using player resistance for muscular development and knee support.

<sup>9</sup>Sales, J. and Grimm, Z., *A Study to Compare Two Specific Exercises Designed to Develop the Thigh Muscle Structures for the Improvement of Knee Joint Stability*, Unpublished Masters Thesis, Springfield College, June 1954.



damental facts be considered in relationship to exercise, strength loss following exercise, recovery from strength loss and the element of increased injury potential during periods immediately following the conditioning program.

Original experimental research recently completed at Springfield College<sup>10</sup>, dealing with the problem of muscular strength loss following vigorous physical activity to fatigue, indicates the following from ergographic studies:

(1) During the first two weeks of exercise to fatigue the *unconditioned subjects* showed strength loss of 31-33% immediately (30 sec.) following exercise and 40 1/2 minutes later, the recovery was still 19-25% below the original starting strength level. The indication here is that the practice of starting contact drill immediately following the conditioning program increases the potential of injury due to the loss of muscular strength. This thinking is further substantiated in the National Athletic Trainers Football Injury Survey of 1952 which reports that there is a high incidence of injury early in the season and it is assumed that knee injury is high in this incidence (this may well be due also to the fact that the player is not in top physical condition but is working hard to obtain a team position.) It could be hypothetically concluded here that a rest period or non-contact period of drill immediately following conditioning work, would be considered as acceptable procedure in early season practice, thus reducing the injury incidence.

(2) During the three weeks of exercise to fatigue with the *conditioned subjects* the strength loss immediately following exercise was 29-32%, but 37 1/2 minutes later it was reduced to 6-9% below the original starting strength level. It is to be noted that the conditioned subjects started at a higher strength level before the experiments. The indication here is that the practice of starting contact drills immediately following the conditioning program is still a hazardous procedure, but that the inactive period before contact drill could be reduced as condition of muscular strength increases. The data shows that the conditioned subjects regained strength recovery from 89-92% in 12 1/2 minutes, thus giving a higher level of strength protection for earlier contact drills following the conditioning program. It may be concluded that this information indicates the value of conditioning for more rapid recovery from strength loss due to exhaustive physical activity and that the higher level of strength developed as a result of preconditioning will reduce injury potential. Due to these facts it is suggested that the application of the bench technique be followed by a noncontact period of the practice session or that the exercise program be carried out well in advance of the practice session. The application of this technique or other type of P.R.E. is best accomplished in advance of the starting of the practice sessions because then the player will have the developed strength protection and not be building it during the time it is needed. Such work done during the spring or summer will give the player the advantage. Evidence shows that strength levels of increase of the thigh musculature has been maintained over a year's period when the person remains in some form of active activity.

#### *Application of the Method (Fig. 1)*

The step by step execution of one complete exercise may be followed in the exact detail as described. The timing of one complete execution of movement takes a total of four seconds, two seconds from picture A to completion of C, (full knee extension) and two seconds to return to the sitting position. In this complete action both concentric and eccentric muscle actions are experienced and maximum effort obtained for their specific work. During the first two days, ten to fifteen repetitions are enough to teach the student

the cadence. (fifteen repetitions equal one minute of exercise.)

It is specifically recommended that the placement of the bench be followed exactly as illustrated for maximum results. If there is too great a distance here, the leverage factor is so changed as to reduce the effectiveness of the body weight against which the musculature work. In order to increase the work load during the exercise period two additions to the technique may be made after the player has adjusted to the technique:

- (1) Allow the body to lean back beyond the perpendicular in both phases of movement and/or
- (2) Strap additional weights across the back so as to increase body weight load.

#### *The Exercise Program Applied:*

After the exercise cadence has been learned the player may daily progressively build up the number of repetitions of exercise, as well as the addition of extra weight, to increase the weight resistance against the working musculature.

The exercise program consists of one period per day, five to ten minutes in length and four to five days per week. *Each exercise period consists of two equal exercise sessions with a 2-3 minute rest period between sets. (Table I)*

TABLE I

#### FIRST WEEK

<i>1st - 2nd Day</i>	<i>3rd - 5th Day</i>
10-15 RM*	20-25 RM
*Repetitions	

#### SECOND WEEK

<i>1st - 2nd Day</i>	<i>3rd - 5th Day</i>
25-30 RM	30-35 RM

#### THIRD WEEK

(10-20 pounds of weight (bar bell) supported behind neck)

<i>1st - 2nd Day</i>	<i>3rd - 5th Day</i>
45-50 RM	55-60 RM

#### FOURTH WEEK

(20-30 pounds of weight (bar bell) supported behind neck)

<i>1st - 5th Day</i>
60 RM

*Cadence of exercise*—4 seconds per single movement of exercise; 1 and 2 seconds to leg extension and 2 seconds to return to starting position. *Rest period*—2-3 minutes between sets.

Two sets of exercise are performed at each session. Total exercise period for 35 RM equals 140 sec. x 2 or 4 min, 40 sec. plus a 2 minute rest period between sets.

*Each exercise period should be followed by a short period of hamstring stretching.*

A



B 1 & 2



C



## KLEIN'S EXERCISE

Bench Technique for Muscular Development  
and Knee Support

### Starting Position:

Subject sits on bench with the edge of bench *three to four inches* behind the popliteal space of knee, feet are placed beneath adjustable bar, trunk in perpendicular.

### Exercise Sequence

#### Count No. 1

Subject forcefully straightens knees. As the legs extend, the trunk is raised above the bench. The trunk remains perpendicular. B. 1.

#### Count No. 2

Subject comes to a *full leg extension*, body weight is supported by the bench at the point of contact with the posterior aspect of the thigh, the trunk remains perpendicular. A backward lean increases the difficulty of the exercise.

#### Count No. 3

The angle of the thigh at the knee joint decreases as the body moves toward the starting position. The weight is controlled by lengthening contraction of the extensor muscle groups, B2. This is a reverse action of picture B 1.

#### Count No. 4

Subject returns to the starting position as in picture A.

**\*\*For further information contact K. K. Klein, Dept. of Physical Education, University of Texas, Austin.**

Original experimental research in exercise comparison conducted by John C. Sales and John Grimes in collaboration with K. K. Klein.

FIG. 1

## GROUP EXERCISE BENCH for TOTAL THIGH DEVELOPMENT AND KNEE STABILITY

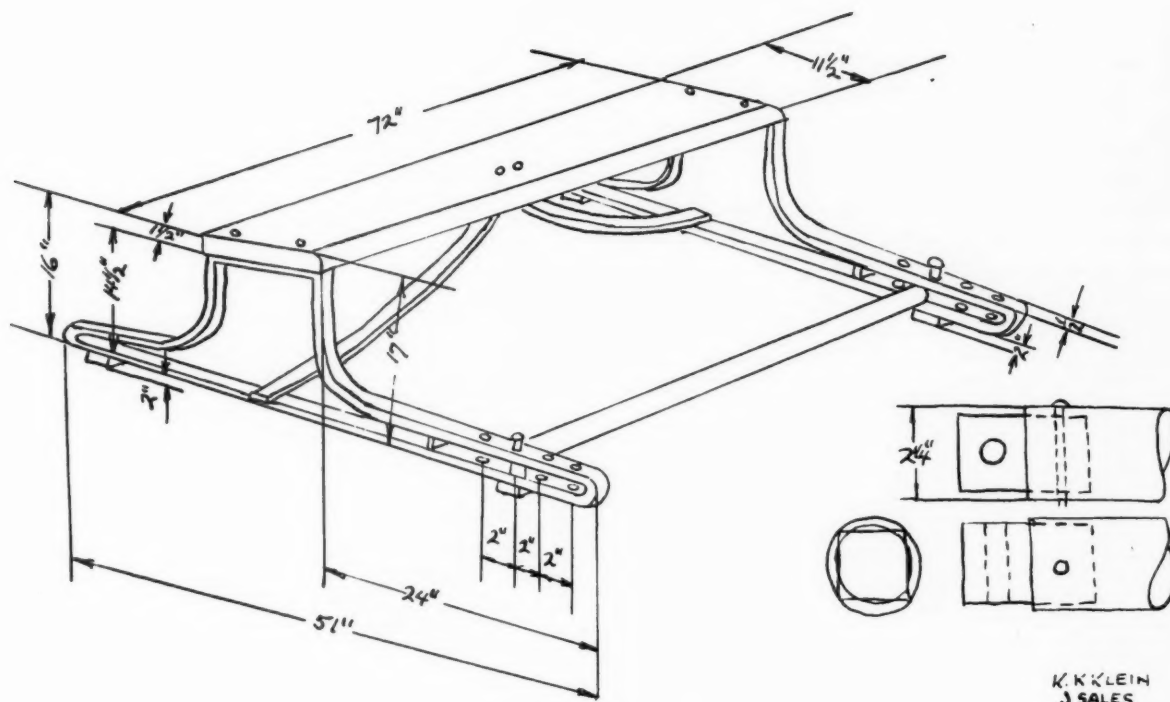


Fig. 2

This exercise program may be continued into the fifth and sixth week in an effort to reach toward maximum strength protection.

Under a program of this nature it is evident that the administrative factors are satisfactorily met according to previously listed criteria. The progressive resistive element is also present both from the standpoint of strength as well as endurance which is handled as one unit in an effort to build both qualities into the muscular groups under emphasis. The criteria listed can also be successfully met in that:

- (1) The muscle groups are placed under progressive stress.
- (2) The exercise is individually presented in that each player is competing his trunk weight against his muscular strength.
- (3) The factor of strength-power as well as endurance is considered by the method of increased weight application as well as increased repetitions.

- (4) The exercise technique has tested qualities of building rapid rate strength.

In conclusion it should be stated that it is difficult to estimate just what the ultimate quality of strength protection should be and it is somewhat of an undeterminable factor at the present time. It would be safe to say, however, that the goal is the achievement of a bilateral balanced musculature with stress on hamstring as well as quadriceps development (both muscular groups are considered in the technique discussed here.) Granted that progressive advancement and study in this problem may develop new ideas and concepts in the future, the evidence today points to the value of specific conditioning technique that will build the needed qualities for protection against debilitating injury as well as allowing the player more time in the competitive activity.

<sup>10</sup>Clarke, H.H., Shay, C.T. and Mathews, D.K., The Effect of Pack Carrying on the Muscular Strength of Involved Muscles, *Annual Progress Report No. 1 to Climatic Research Laboratory, Quartermaster Corps, Department of the Army*, August 3, 1953, Ch. 4.

# SOME SOCIAL AND PHYSIOLOGICAL TRENDS IN WOMEN'S ATHLETICS

ERNST JOKL, M. D.\*

## Introduction

Of the 69 countries which were represented at the 1952 Olympic Games in Finland, 28 did not send women competitors. Among these were Greece, Turkey, Ireland, Spain, Egypt, Nigeria, Gold Coast, Pakistan, the Philippines, Iran, Indonesia, Ceylon and Vietnam. Considering furthermore that the nations listed below\*\* were not represented at Helsinki at all, and also that most of the colonial countries and the U. N. Trust Territories were absent, the total population of the regions from which no women came to the Games amounted to more than half of the world's inhabitants.

India, with its 350 million people, entered seven women athletes; Israel, with its one million people, entered four; while neither Egypt, Jordan, Syria, Yemen nor Iraq delegated any female participants. South Africa's team of nine women was restricted to members of the white race; British-governed Hong Kong sent three women. The United States, Europe, Russia and the British Dominions displayed by far the greatest interest in the women's events at the Olympic Games.

A global analysis of the data for participation and athletic achievements at the Olympic games recently undertaken by Karvonen and Jokl<sup>1</sup> reflects the social status and the stage of emancipation of women in the different parts of the world. The nations which were conspicuous by their absence or who did not include women on their teams are distinguished also by unfavorable, or by comparatively unfavorable conditions, in respect to child health, of rates of morbidity and mortality of the population at large, as well as to longevity. In the countries which neglect the physical fitness and physical education of women there is also a short average life span as well as high incidence of infectious diseases. Conversely, the high participation and athletic success ratios for the United States, the USSR, Europe and the British dominions reflect social advancements, at least in the groups from which the teams were selected.

From the Olympic analysis a special problem arises which is of relevance for the general practice and theory of physical education as well as for our general

concept of woman's position in society. If, on a global scale, a high standard of physical efficiency of women forms an integral part of a superior pattern of health, of growth, and of fitness of the societies concerned, a re-examination would appear overdue of the traditional reserve with which the subject of physical activities and of physical training for women is still treated today by the majority of educators and of physicians. Simone de Beauvoir's conclusion presented in a great book<sup>2</sup> seems to be corroborated by the above data, viz. that the contemporary social status of women, even in the "progressive" countries, is characterized by restrictive influences of historical and pre-historical prejudices and taboos. The clinical data on women's athletics which have been presented in a previous article<sup>3</sup> point toward the same conclusion: biologically the female sex is more robust and its scope of adaptation to the demands of environment challenges is much greater than has so far been assumed.

## Performance Standards in Women's Track Events at the 1952 Olympic Games.

The track and field events for women not only yielded outstanding individual feats but also an impressively broad spectrum of top level performances. Eleven women ran the 100 meters in 12 seconds or faster. The times of the six finalists were 11.5, 11.8, 11.9, 11.9, 12.0, and 12.1. Miss Jackson ran the 200 meter race in 23.4. The 6th in the race still clocked 24.6. Miss Faggs failed to qualify for the final although she ran 24.5 secs. in the 6th heat. Three girls finished the 80 meter hurdles in under 11 seconds, and 24 of the 33 participants in this event ran under 12 seconds. With one exception, all the fourteen relay teams ran the 4 x 100 meter in under 50 seconds, with USA and Germany attaining 45.9 seconds. In the long jump, the 22nd competitor still leaped 5.33 m., and the first two girls did 6.24 m. and 6.14 m. Fifteen girls jumped 1.50 m. high and more, the first three crossing the bar at 1.67 m. and 1.65 m. and 1.63 m. Four

\*\*Afghanistan, Bolivia, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Ethiopia, Haiti, Honduras, Iraq, Liberia, Nicaragua, Paraguay, Peru, Saudi Arabia, Syria and Yemen.

<sup>1</sup>Jokl, Karvonen et al., *An Olympic Survey*, in print.

<sup>2</sup>*The Second Sex*, Alfred A. Knopf, New York, 1953.

<sup>3</sup>Jokl, Ernest, *Some Clinical Data on Women's Athletics*, *J. Assn. Phys. Ment. Rehab.* 10:2:48, March 1956.

\*Director of Rehabilitation, University of Kentucky.



girls put the shot more than 14 m., the winner having a throw of 15.28 to her credit. Eleven girls threw the discus more than 40 meters, the first two more than 50 meters.

The results of the other competitions for women at the Games confirmed the impression that a new type of woman is at present evolving as a result of the physical education and sports movement of this century. The traditional concept of the physical inferiority of the female sex no longer holds good as a categorical assumption. The adaptive resources of the female sex which in the past were expanded in order to resist nutritional, climatic, manual work and other primitive strains have become available for new uses under the influence of social and technological advancements.

In his studies of the growth of physical efficiency in children, Jokl<sup>1</sup> demonstrated that among physically untrained children the muscular performance of a large percentage of the fittest girls equals or surpasses those of the least efficient boys. This finding is physiologically as important as is the fact that the statistical means for boys are higher than are the means for girls. The performance potential of girls can be greatly developed through systematic training which is effective in every individual, irrespective of initial performance levels.

Now, what is so remarkable in the contemporary growth of physical efficiency of women which is revealed in the Olympic analysis is the two-fold phenomenon that the majority of women throughout the world are unaffected by this trend; while many of those who are affected now attain standards of performances which are far above those of the average young healthy male. It is a common practice to compare athletic record performances of men and women and to comment on the differences which are thus far apparent. But such an approach produces a fallacious picture. The vast majority of healthy males, young, middle aged or old, are physically untrained. They would have no chance to compete with success against physically well trained women even if we were to disregard the exceptional athletic performance standards of the Olympic competitors. A track and field team consisting of Mesdames Jackson, Hasenjager, Strickland, Brouwer, Blankers-Koen, Golubichnaja, Sander, Williams, Chudina, Cawley, Brand, Lerwill, Zybina Romaschkova, Bagrjanceva, Dumbadze, Zatopkova and Gorschakova would in 1952 have beaten over 90% of boy's high school and men's university teams throughout the world.

*Comparison of present-day athletic records for women with earlier records for men.*

We have compared some of the results in the track and field competitions for men at the first

Olympic games in Athens in 1896 and some subsequent performances with the 1952 performances of the women. At the 1896 Olympic games, T. E. Burke won the 100 meter race for men in 12 seconds while Miss Jackson won the 100 m race in 1952 at Helsinki in 11.5, with Miss Hasenjager coming second with 11.8, followed by Misses Strickland and Cripps, both being timed at 11.9. E. H. Clark of the United States won the broad jump for men at Athens in 1896 with 6.35 m as against the jump by Miss Y. Williams of 6.24 with which she won the same event in 1952 in Helsinki. Mr. R. S. Garrett's winning discus throw 1 29.15 m in Athens in 1896 is far below the 51.42 m throw in Finland in 1952 by Miss Romaschkova of USSR, and the shot put of Mr. Garrett of 11.22 m at Athens in 1896 cannot compare with the 15.28 m performance of Miss Zybina of USSR at Helsinki 1952, even if it is taken into account that the women use somewhat lighter weights. At the end of 1955 the world record in shot put for women had advanced even to 16.29 m, and for the discus event to 51.04 m.

At the 1896 games in Athens, Hache of Hungary won the men's 100 meter free style swimming race in 1 min. 22.2 secs., while at the 1952 games in Helsinki Miss K. Szoke, also of Hungary, came first in the women's 100 meter free style race in 1 min. 06.8 secs. Miss V. Gyange of Hungary won the women's 400 meter free style swimming competition at Helsinki in 1952 in 5 mins. 12.1. This extraordinary performance falls into perspective if it is recalled that Mr. C. M. Daniels of the USA won the same race for men at the 1904 games at St. Louis in 6 min. 16.2 secs., that Mr. O. Scheff of Austria won the event at the 1906 Olympic games, in 6 min. 23.8 sec., that Mr. H. Taylor of Great Britain won the Gold Medal in the same competition in 1908 at the London Olympic games in 5 min. 36.8, that Mr. G. R. Hodgson of Canada did likewise at the 1912 Games in Stockholm in 5 min. 24.4, and that Mr. N. Ross of the USA came first in 1920 at the Antwerp Olympic Games in 5 min. 26.8. In 1922 Johnny Weismuller established his famous free style swimming world record over 400 meters of 5 min. 06.6—but Miss Hveger of Denmark has just swum a time of 5.00.1 thus creating a new world record for women with which she would easily have beaten the popular and much admired American champion of 30 years ago.

What we are witnessing at present are the physiological effects of a new dynamic concept which the athletic movement introduces on an increasing scale into mankind, of a concept which mobilizes forces

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<sup>1</sup>Research Quality, 20:1, March 1949.



# PHOTORESISTANCE IN BACTERIA\*

FOLKE BECKER, M. D.\*\*

EDWARD V. LIPSCOMB, M. S.\*\*\*

## Introduction

One might, perhaps, at the outset wonder about the relationship between Corrective Therapy and Bacteriology. However, we in the rehabilitation field require very little reflection to realize the importance of accessible and inaccessible infections as outstanding limiting factors to early restoration of function. Such infections, by producing pain on motion, deformity, or debility in the patient, can and do, seriously interfere with our efforts to accomplish rehabilitation goals.

Most infections respond readily to antibiotic therapy, with or without physical therapeutic measures. There are some strains of organisms, however, that are resistant to some or all of the known antibiotics in varying degree. In many such cases, where the site of infection is accessible to ultraviolet irradiation, which is in general, highly bactericidal but poorly penetrating, prompt and complete resolution of the infection can often be attained. Through the use of Quartz "panes" and variously shaped quartz applicators, soft tissues can be pressed or "ironed out," thus greatly enhancing the effective penetration of ultraviolet irradiation which is ordinarily from 1/2 to 2 mm. only, in soft tissue.

It has been felt by many observers that in addition to having or developing resistance to antibiotics, certain organisms have or develop photoresistance, and that in time repeated U.V. irradiation will lose its effectiveness against these organisms. Furthermore, it has been reported by Haas, Wyss, Berger and Stone<sup>1</sup>, that mutations to antibiotic resistance can be induced in certain bacteria through Ultraviolet irradiation. It is with these considerations in mind that we undertook the following study.

The study was made to determine the difference in morphology, staining characteristics, biochemical reactions, pathogenicity and photoresistance between bacteria never subjected to ultraviolet irradiation and the survivor colonies of the same bacteria which had been successively subjected to ultraviolet irradiation up to the point of a complete kill in each series.

Changes in the protein structure of those organisms which were killed were not a subject of this investigation.

Practically all bacteria are killed by adequate ultraviolet irradiation, some more readily than others, even under identical conditions of irradiation. As a rule, those organisms which normally invade the human body are the most susceptible to ultraviolet irradiation.

The effect of ultraviolet irradiation upon an organism or person depends upon certain factors. The chief ones are:

1. Susceptibility of the organism or person.
2. The particular spectral energy distribution of the source.
3. Intensity (expressed in MW/cm<sup>2</sup> of the area).
4. Duration of exposure.

## Experiment

The Hanovia Luxor "S" Ultraviolet Alpine Lamp of the hot quartz type, having 450 burner input watts and 3.8 burner amps, was selected as the source of ultraviolet radiation. This lamp produces a complete ultraviolet spectrum and also radiation in the visible and infrared portions of the electromagnetic spectrum. A fixed operating distance of 30 inches from front of burner to surface of media was maintained. No filters were employed.

A stock strain of hemolytic *M. pyogenes*, var. *aureus* uniformly streaked on blood agar medium, was irradiated for 60 sec. and incubated in the dark. The process was repeated with survivors of the first irradiation and identical conditions employed except for the addition of a 60 sec. time increment. A control consisting of the parent stock strain was irradiated simultaneously with the survivors of the first irradiation. Subsequently, the irradiation time was successively increased, and each time survivors of the preceding irradiation were used as subjects for each following irradiation while non-irradiated parent organisms comprised the control in each instance. The bilateral series was continued until an exposure time was reached which produced a complete and consistent kill in both the successively irradiated survivor organisms and the parent control series.

\*Presented at the Tenth Annual Conference, The Association for Physical and Mental Rehabilitation, Augusta, Ga., June, 1956.

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<sup>1</sup>Haas, F.L., Wyss, O. Berger, H. Stone, W.S., Induction of Mutations to Antibiotic Resistance in Bacteria, *Jour. Bact.* 65 (3):354. 1953.

<sup>2</sup>Loc cit.

Laboratory animals of the same litter, weight and age were inoculated intraperitoneally with suspensions of measured volume and dilution of cultures of irradiation survivors serially, and it was found that there was no appreciable difference in the reactions observed in these animals at autopsy as compared with the reactions found in similar control animals inoculated with the parent culture of the same organism, in this case, hemolytic *M. pyogenes* var. *aureus* never subjected to irradiation.

Staining characteristics, morphology, biochemical reactions and resistance to antibiotics were found to be the same in the successively irradiated survivor bacteria as was the case with controls consisting of original non-exposed cultures of the same organism.

We were unable with the irradiation source employed by us to confirm the conclusions of Haas, Wyss, Berger and Stone<sup>3</sup> whose work indicates that *Micrococcus pyogenes* var. *aureus* exhibits induced resistance to Penicillin and Streptomycin following ultraviolet irradiation of growth in irradiated substrate. We further found that irradiation of substrate by both natural and artificial means had no bearing on growth potentialities of *Micrococcus pyogenes* var. *aureus* thereon, whether streaked immediately or after one-half hour, at which time any incident Ozone and Hydrogen Peroxide effect would be negligible, nor were any mutations induced in such colonies.

Inasmuch as visible light composed a constant part of our irradiation source in these experiments, the phenomenon of Photoreactivation as described by Kelner<sup>4</sup> was not made a consideration of this investigation. Kelner has found that in a population of microbial cells irradiated with ultraviolet light (2537Å), a large portion of the cells are inactivated before dying, but that if such cells are illuminated

with visible light within a certain time many of these cells are reactivated and can divide apparently normally and form a colony.

#### Summary

Using the Hanovia Luxor "S" Ultraviolet Alpine Lamp, successively irradiated survivor colonies of *Micrococcus pyogenes* var. *aureus* streaked on blood agar were exposed to increasing amounts of ultraviolet irradiation up to the point of a complete kill. At each exposure phase such colonies were studied with respect to morphology, staining characteristics, behavior in standard laboratory media, pathogenicity and resistance to antibiotics. There was no significant variance demonstrable between any exposure phase nor with controls consisting of previously un-irradiated parent cultures of the same organism. The rate of kill in the successively irradiated survivor group and the parent controls, under the conditions cited, was the same and directly proportionate to the duration of exposure, all other factors influencing the effect of ultraviolet irradiation being constant. It is of interest to note that complete kills due to ultraviolet irradiations were obtained in successively irradiated survivor colonies of *Micrococcus pyogenes* var. *aureus* well within therapeutic limits to which human tolerance can be readily induced.

From this experiment it can be concluded that with the light source and conditions employed, a strain of *Micrococcus pyogenes* var. *aureus* did not develop resistance to ultraviolet irradiation nor were there any mutations induced when increasing exposures up to the point of a complete kill were used.

<sup>4</sup>Kelner, A., Effect of Visible Light on the Recovery of *Streptomyces Griseus* Conidia from Ultraviolet Irradiation Injury, *Proc. Nat. Acad. Science*, 35:73-76, 1949.

NEUROPSYCHIATRIC — Cont'd from Page 181  
be attempted by exercise situations when the prescribing physician so desires. A feeling of guilt may occur when the patient "unconsciously" wishes harm on others. The patient will wish for punishment especially when something serious happens to the person for whom he has wished harm. It is easy to see where the corrective therapist can offer activities to acceptably satisfy these needs. Here again, the approach to the patient and the activity will determine the amount of therapeutic release. The inability to express hostile feelings is common to many of our mental patients. They may show their hatred by facial expression or muscle tenseness, but otherwise be unable to do anything about it. Where relief from such feelings are prescribed, the corrective therapist

can offer much help through light and heavy bag punching, baseball batting practice, golf ball driving, medicine ball activity, swimming, etc.

There are many other behavior characteristics for which the corrective therapist can offer activities designed to furnish relief. Some of these are aggression, obsessive-compulsive traits, expansiveness, need to excel, need to control, and narcissism. There also may be times when the physician prescribes training, re-training or re-education in opportunity for leadership, self-care activities, re-awakening of pleasurable patterns, etc. Again, many different activities may be utilized by the therapist, the prescribed objective dictating the approach and manner in which they will be used. For some objectives the patient will be as-

(Cont'd on Next Page)

# CROQUET GOLF

DAVID S. BILOWIT\*

## Introduction

During the past two months the author has utilized a game for psychiatric patients that started as Croquet and went through several phases until the game described below evolved. It is a game that seems to hold patient interest at a maximum.

## The Game Name: Croquet Golf

### Description

The game is played outdoors, preferably on grass. The object is to hit the ball with the mallet into the "cup" in as few strokes as possible. The man doing so wins the hole. The distance between cups may be varied according to available space and skill of the players. Distances between cups and angles may be continually changed to promote player interest. Materials needed are croquet mallets, croquet balls and metal cups. These cups are approximately 6 inches wide with three sides closed so that the ball must enter from only one direction. (Fig. 1)

It is primarily a team game (though individuals may play). Each team consists of 2, 3 or 4 players who all use the same ball. The first player tees off for each team. Then the second man on each team plays the ball. If the second man makes the hole, the third man tees off for the next hole. Ten points is the winning score but this, too, may vary according to player interest, physical condition, skill or other factors.

### Objectives

1. To activate withdrawn patients in a mild activity.

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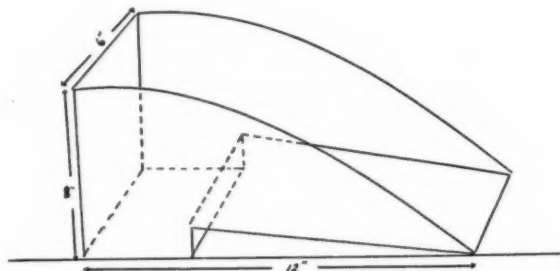


Fig. 1

2. To provide a mild activity when strenuous activity is contraindicated.
3. To help acquire skill in a sport and consequently, build self confidence.
4. To encourage teamwork (leadership, followship and cooperation between team members), a major part in the resocialization process of the patient.

### Summary

The patients have found the game fascinating. Not only does it inculcate teamwork, but real sportsmanship. Players cheer their opponents' good shots and rarely censure a teammate for a poor shot despite the fact that they must make up for it when their turn comes.

The game also affords an excellent opportunity for the therapist to observe the patients. With the players alternating, a ball often blocks the cup entrance. Does the player attempt to drop his ball behind it, 'blast' it away or just nudge it enough to make his own shot? Does he censure his teammate for setting up a poor shot or console him? It is an excellent opportunity to observe the patient when he is not thinking about himself but about the game.

## NEUROPSYCHIATRIC — Cont'd from Page 193

signed to the role of the leader; for another objective, the same activity may be used, but the patient will be strictly assigned to a non-leadership role.

We at Tuscaloosa have found that boxing between patients, when properly prepared for and well supervised, will be more meaningful for selected patients than aggressive types of exercise with inanimate objects. After all, most conflicts were not with inanimate objects, but with people. The patients usually display

an amazing amount of self-control and sportsmanship when they realize that they have an opponent who can strike back.

I am assuming that such a subject as you have given me entitles me to hand out some advice. If I do have this privilege, here are a few things I would like to emphasize to corrective therapists treating the acute neuropsychiatric patient:

1. Your language or finesse and cleverness of expression is not as important as your sincerity and emotional strength.

2. Your role should be that of the protecting mother, not the castrating father.
3. You must be absolutely and genuinely free of defensiveness.
4. Your attitude should be forceful and benignly aggressive, but not one that conveys anger, irritability or impatience. It should be rather the kind of strength of character which the patient senses that he himself needs; and this will lay the basis for some degree of identification.<sup>15</sup>

I believe we will see better and *quicker* results in the conditions of NP patients when more emphasis is placed on corrective exercise therapy as a treatment modality. It could replace, and *is* replacing many hydrotherapy measures and some of massage. Corrective therapy is important in treating many conditions. I only wish all of you could see our outside enclosed area conducted by the corrective therapy section at our hospital. We do get results—if time would permit I could cite you numerous remarkable cases. Just remember, *corrective exercises must be prescribed adequately and carefully.*

<sup>15</sup>Z. Alexander Aarons, Some Aspects of Theory and Treatment of Schizophrenics, *Psychoanalytic Review*, 38:2:113, April 1951.

#### CARDIAC CASES — Cont'd from Page 184

lids and to become of little use to their relatives and to drain on society, whereas they have much to contribute, and by remaining useful members of society they retain their pride, their health, and their vigor. *Myocardial Insufficiency*

This is a disease that comes on with the aging process and may be extremely difficult and annoying to the patient. Angina pectoris is a serious condition most difficult to treat. However, this should not deter us from applying all means that we have to corrective therapy. After assessing the ability and condition of the patient, prescribing the proper drugs, he or she should not be permitted to become an invalid. To prescribe absolute rest for these people cannot be justified by any known present physiological facts. Then each individual must be studied for his own potentials, his capabilities determined; he should be kept in good physical condition and continued as a useful member of society. The very fact that you put these people to bed and keep them there will bring on a disastrous result itself. The vicissitudes of being set apart from others, deprived of the ability to take one's place in the world can cause more havoc than the physical activity necessary to take the attitude that they should be helped and a positive program of activity outlined for them.

#### Obesity and the Heart

The fat person literally eats himself into the grave. Fat has two deleterious effects on the heart; first, the heart must pump blood to this fat which is of no useful purpose to the body, demanding an increase in the pressure and the stroke volume of the heart, probably resulting in hypertension and cardiac hypertrophy and dilatation. A worse effect is the fact that fat infiltrates the muscle fibers of the heart and is eventually replaced with scar tissue, causing serious damage. Before any serious therapy of a fat individual can be successful, a program of reduction must be instituted and followed vigorously. There is only one reason for fat, and that is that the individual eats too much. There is no fat person who cannot be reduced, but it requires his cooperation to the utmost.

#### Summary

Each cardiac is an individual who must be treated according to his capabilities and not his restrictions. These capabilities must be determined, and the patient must be made to live up to his ability to work. He must not be permitted to become an invalid until such time as the physiological facts proclaim it. The cardiac must be kept in good health, his muscles must be kept in good tone. The aging individual should be taught certain definite exercises to take, if nothing but a brisk walk each day. The etiology and pathology of heart disease is not of importance in corrective therapy. The important factor is the ability of the heart to respond to the needs of the individual—this is a measurement of the capabilities of the individual and is similarly assessed in all heart diseases.

#### WOMEN'S ATHLETICS — Cont'd from Page 191

that have been lying dormant for millenia. This statement applies to men as well as to women though in the case of the latter to a relatively greater degree, for the reasons which de Beauvoir has so impressively stated. In attaining superior standards of physical efficiency, every woman gains in status and adds to her dignity, freedom and happiness.

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## "From Other Journals"

F. A. HELLEBRANDT and SARA JANE HOUTZ, "Mechanisms of Muscle Training in Man," *Physical Therapy Review*, 36:371-383, June, 1956.

Post operative rehabilitation can be individualized only when the mechanism of muscle training is understood. The original DeLorme system has undergone modifications which all but nullify the physiological principle upon which the development of strength is based. The "Oxford technique" of Zinovieff violates the basic concept on which overload training is based. Determination not to reduce the rate of work when the stress imposed seems insuperable is the *Sine qua non* of overload training. Restoration of function is possible only if the limits of performance are persistently extended. The rate of improvement depends primarily upon the person's willingness to punish himself.

Seventeen subjects practiced repetitive wrist flexion or extension on an ergograph. Seven different training procedures were studied. Improvement in strength was striking when the stress imposed exceeded that which could be overcome easily. The training curve was affected by the amount of the stress, the number of practice sessions and the duration of the effort. The amount of work done per unit of time is the critical factor. The rapidity with which overload stress increases the capacity for severe exercise suggests that this must be due in large measure to changes in the CNS related to motor learning. It cannot be due, at least initially, to alterations in anatomical structure.

—PJR

HEENRY L. HEYL, "Some Practical Aspects in the Rehabilitation of Paraplegics," *Journal of Neurosurgery*, XIII:184-189, March, 1956.

It is absolutely essential that each paraplegic at the right time be taught the tricks of getting himself around and the fundamentals of bladder and bowel training. The emphasis on crutch walking is not only disproportionate to the value received but is often detrimental. Crutch walking won't earn a paraplegic many dollars, and the earning of dollars is very close to true rehabilitation. Enthusiasm and new increment of social independence are the paraplegic's defense against preoccupation with social and financial insecurity. A search should be made for activities which bring about an enthusiastic response in the patient. Contacts with normal people should be applied. Learning how to operate a hand-controlled automobile is possibly the single most important element in the paraplegic's whole rehabilitation. Every effort must be made to see that he is fitted for some kind of employment.

—PJR

"Advertisements of Toothpaste," *British Dental Journal*, 100: 21-22, January 3, 1956.

The toothpaste industry, as a whole, is not interested in dental health; it is out to earn its living by making and selling toothpaste. *Advertising Age* says, "Dental cream advertisement is, in our opinion, an outstanding example of how to create callouses on the human mind so that, eventually, it becomes insensitive to all advertising." There is no evidence, generally acceptable, to show that the use of any toothpaste or powder known today, or any substitute which is appropriate for use in the mouth, will protect the teeth beyond the continuance of the relatively clean condition established at the time of its use.

—PJR

RUSSELL I. LONDON, "The Industrial Back," *Journal Lancet*, 76:65-68, March, 1956.

When the back is visualized as a mechanical structure, certain factors become evident: (1) The strongest back has a maximum load potential. (2) Always carry a load close to the body. (3) Never throw nor catch a heavy load. (4) Always secure a good footing with both legs upon the most level ground. The most common industrial injury to the back is a simple myofascial sprain. Whenever a sprain occurs "inflammatory changes" set in. The stretched or torn fibers start this reaction and the vessels dilate, allowing serum and even blood to pour in. The resultant local swelling presses upon nerve fibrils and results in a protective splinting by spasm of the surrounding musculature. If heat has been applied, the amount of serum and blood pouring in is increased and the patient's condition becomes worse. Heat and physiotherapy have no place in the emergency care of the sprained back. For the first twenty-four hour period after a low-back sprain occurs, apply an ice bag to the site of pain. This should be used for a fifteen minute period every hour. Insist upon complete rest on a non-sagging bed until the pain and muscle spasm disappear. If the relief of pain and muscle spasm requires more than ten days provide a fitted support. Appraise the patient's tolerance in his support and see that he returns to work as quickly as possible, even if less arduous duties must be arranged.

—PJR

EDWARD L. BORTZ, "Stress and Aging," *Geriatrics*, 10: 93-99, March, 1956.

Aging is pretty much a matter of diffusion of energy. This process, insofar as it represents a gradual and continuous irreversible loss of energy, results in structural and functional alterations which are the measure of the rate of aging. When a tissue retains its ability to maintain optimum structure for optimum function, the rate of physiologic aging may be kept at a minimum. Adaptation to stress is a gradual building up of resistance of the tissues of the body to adverse factors. Loss of ability to adapt is an indication of aging. The most common factors which bring about exhaustion of body resources include illnesses, disorders of function, disease of organs, and abnormal mental attitudes. Vascular degeneration and disorders of the CNS are the two major afflictions of U. S. citizens. Stress plays an important part in the pathogenesis of most maladies. Stress implies a struggle. There is an expenditure of energy which leaves the organic reserves exhausted, rendering the individual ready prey for many clinical conditions. Fatigue is a subjective phenomena synonymous with the boredom of many elderly individuals. The study of stress and mental attitude are two major objectives in gerontology. Protective nutrition, anxiety resolving devices, and specific motivations are basic essentials. Emotional life is highly important. It is not a fight for the duration of the body so much as it is a fight for the duration of the capacity for happiness. Purposeful activity up to the limits of physiologic and mental optimum represents the most potent factor in the fight against premature human deterioration.

—PJR

J. V. DURNIN AND V. MIKULIC, "The Effects of Graded Exercise on the Energy Expenditure and Heart Rates of Young and Elderly Men," *Journal of Physiology*, 131:22P-23P, 28 February 1956.

Physically fit men aged 20-30 years were compared with men aged 55-65 in performance in four types of graded exercise on an arm ergometer and on a treadmill. During arm exercises there was no significant difference in pulmonary ventilation, energy expenditure and heart rate, but in the treadmill the older men expended significantly more energy than the younger ones. The behavior of the pulse followed a similar pattern. One must take the age of the subjects into account when trying to equate the physiological cost of different types of exercise.

—PJR



WILLIAM AMOLE, "Clinical Experience with a New Muscle Relaxant, Zoxazolamine," *Journal of The American Medical Association* 160:724-745, March 3, 1956.

Twenty-eight patients with neurological disorders were given zoxazolamine. It proved to be a mild muscle relaxant whose effects were apparent only in the patients with spastic extremities. When chlorpromazine was added, none of the patients with torticollis were benefitted. Two epileptic patients experienced an increase in their seizures. Ambulatory patients whose spastic extremities were favorably affected complained of greater weakness in these extremities. This seemed proportional to the amount of relaxation obtained and was responsible for the abandonment of the therapy by most of the patients who had shown the best response. The major benefit seemed to be the alleviation of the discomfort and inconvenience of the spasticity.

—PJR

JEAN MAYER, PURNIMA ROY AND KAMAKHYA PRASED MITRA, "Relation Between Caloric Intake, Body Weight, and Physical Work," *American Journal of Clinical Nutrition*, 64:169-179, March-April, 1956.

A group of 213 male subjects in West Bengal, India, was studied to determine whether work could be correlated with food intakes and body weight. Caloric intakes were not correlated with incomes, religion or caste, or age. Differences in average weight between light work, medium work, heavy work and very heavy work classes were not significant. Food intake increases with activity only within a certain zone, called the "normal activity range." Below that range, in the "sedentary" zone, a further decrease in activity is followed by an increase in food intake and body weight. This may be due to the fact that in his hundreds of thousands of years of evolution man did not have any opportunity for sedentary life until very recently. An inactive life for man is as "abnormal" as caging is for an animal. In this light the failure of some of the usual adjustment mechanisms is not surprising. The fact that mechanized living is pushing an ever increasing fraction of the population into the "sedentary" range may be a major factor in the increased incidence of obesity.

—PJR

FRANK H. KRUSEN, "The Role of the Physiatrist in the Management of Pain," *Proceedings of the Staff Meetings of the Mayo Clinic*, 31:218-220, April 4, 1956.

Moderate doses of ultrasonic energy and moderate direct heating produce a reversible blocking of the action potentials of peripheral nerves. In muscular spasm there is an increase in the number of action potentials. In many instances this is relieved by physical therapeutic techniques. Applications of heat locally cause a marked increase in the flow of blood, which frequently relieves pain. Swelling and edema of tissues cause pain arising in the peripheral nerve endings, and physical measures which will reduce such swelling often result in the relief of pain. Immobilization may produce a reduction of the afferent stimuli. Reduction of the metabolic requirements of a portion of the body may reduce a passive vascular engorgement. Microwave diathermy is particularly safe and effective for increasing circulation and relieving pain in the deeper regions or small local areas. With heavy doses of ultrasonic diathermy a nerve can be damaged without injury to the surrounding muscles. This may be helpful in the management of pain. Heat applied generally, in the fever cabinet, is less frequently employed but may be helpful in certain cases. Application of heat to the upper extremities or buttocks may cause a reflex vasodilatation in the legs and tend, in some cases, to relieve the pain of occlusive arterial disease. Passive stretching, employed in conjunction with massage, will aid in increasing the blood flow. Proper coordination of muscular actions by appropriate exercises and the retraining of weakened muscles to resume more nearly normal activity are important in the relief of static pain such as is found in postural back ache and weak feet. The employment of mechanical traction may relieve radicular pain.

—PJR

EDWARD K. CAPEN, "Study of Four Programs of Heavy Resistance Exercises for the Development of Muscular Strength," *Research Quarterly*, 27:132-142, May, 1956.

Four exercise programs were administered for twelve weeks to eight different groups. (1) Subject started with the heaviest weight with which he could do 8 repetitions. When he had worked up to 15 repetitions, a new 8 repetition load was determined and the program restarted. (2) Above, plus an additional set using the heaviest weight with which the subject could complete five repetitions. A three minute rest was taken between the two sets. (3) Subject used heaviest weight with which he could perform 5 repetitions. After a three minute rest, he performed a second set. A third set was done in the same manner. When the subject could do five repetitions in all three sets, the weight was increased. (4) Subject used heaviest weight with which he could do one lift. After a three minute rest period the weight was decreased slightly and the subject did as many repetitions as possible. After a second rest period, the weight was again decreased and the subject again did as many repetitions as possible. The amount of strength gained from each of the four programs was found to be nearly equal, although that from program 4 was the highest. This program appeared to be more satisfactory when used three days each week rather than five days.

—PJR

HOLLIS F. FAIT and HARRIET J. KUPFERER, "A Study of Two Motor Achievement Tests and Its Implications in Planning Physical Education Activities for the Mentally Retarded," *American Journal of Mental Deficiency*, 60:729-732, April, 1956.

The objectives of education for the mentally retarded are to cultivate inherent potentials, to correct anti-social tendencies and to instill some knowledge and capabilities. Frustration should be avoided and excessive failures eliminated. To offer physical education experiences to the retarded much like those of other children and at the same time reduce tensions and frustrations are irreconcilable objectives. A comparison was made between standard norms and performances by mentally retarded students on two simple motor skills: the vertical jump, involving a single basic movement, and the Burpee Squat Thrust, involving four separate basic movements. No relationship was found between the IQ and the vertical jump, but some relationship does exist between the IQ and the squat thrust. The physical education program for the mentally retarded should be varied from that offered normal children, rather than offering the same games and sports with lower achievement expectation. Attempts to perfect the basketball dribble may not prove a successful educational experience. Tap dancing and complicated folk dancing are probably beyond their abilities, while modern dance may be a successful experience. Success is related to simplicity of the motoric effect—pyramiding of body movement diminishes the chances of successful performance.

—PJR

A. W. SCHENKER, "Goniometry—An Improved Method of Joint Motion Measurement," *New York State Journal of Medicine*, 56:539-545, February 15, 1956.

With a protractor type goniometer, joint measurements in units smaller than ten degrees are not usually significant. This is due to the fact that not a single joint of the body moves purely as a hinge joint, the anatomic center of rotation is extremely difficult to pinpoint, and there are physical difficulties in applying the protractor type. Optical methods are cumbersome, time consuming, and limited in scope. The fluid type goniometer has been designed to overcome these disadvantages. It consists of a transparent circular housing of sealed-in pigmented fluid whose continuity is interrupted by an air bubble. A rotatable disk, calibrated in degrees, overlies and is concentric with the circular column of fluid. Attached to the instrument is a strap by which it may be readily affixed to any moving part of the body whose range of motion is to be determined. It permits reading to an accuracy of two degrees.

# Editorials

## THE JOINT COMMISSION ON MENTAL ILLNESS AND HEALTH

We consciously avoid placing the terms "mental illness" and "mental health" under one heading. Perhaps this is true because we recognize that there is much more to these problems than the prevention and treatment phases which we associate with most physical illnesses. Then, too, recognition of mental health as a positive quality, rather than mere avoidance of serious neurotic or psychotic behavior, has tended to render these terms further apart in our minds. It would be absurd to hold that progress in these areas has proceeded in an orderly and systematic manner in this country. The many facets of these problems have, for the most part, tended to be compartmentalized into a myriad of segments all of which have developed individual existences of their own.

To persons in the medical and allied professions, who share a deep concern for all the factors inherent in the problem of mental health and mental illness it became obvious that there existed a great need to survey the known facts on a national scale, a need which was recognized by Congress in its enactment of the Mental Health Study Act of 1955. This act provided funds to the amount of \$1,250,000 for a three year study to be supplemented by grants from sources outside the Federal Government. The funds were allocated to the National Institute of Mental Health which assigned the task to the Joint Commission on Mental Illness and Health, an organization formed by the American Medical Association, American Psychiatric Association and several other organizations having a major interest in the social, legal, clinical and psychological aspects of mental illness.

Dr. Kenneth E. Appel of Philadelphia is president of the Joint Commission; Dr. Leo H. Bartemeier of Baltimore is chairman of the board, and Dr. Jack R. Ewalt of Boston is director of the study. The commission is now fully staffed and has already undertaken four studies by work groups assigned by the organization. A study of mental health in the schools is being carried out under the direction of Dr. Wesley Allinsmith of Harvard; a one-year evaluation of present theories and knowledge of the means of promoting mental health in the United States has been undertaken by a work group under Dr. Marie Jahoda of New York University; four sub-groups are studying patterns of patient care from the standpoint of (a) supporting agencies in the community, (b) men-

tal health clinics, (c) general, public and private hospitals treating the mentally ill, and (d) rehabilitation. These latter groups are under the supervision of Dr. Morris S. Schwartz of St. Elizabeth's Hospital, Washington, D.C. A community survey of how people feel about their own mental health is being carried out by the Survey Research Center of the Institute for Social Research at the University of Michigan. A number of other studies are being planned.

The Association for Physical and Mental Rehabilitation is very proud to have been selected as a participating member of the Joint Commission. It is our desire to place at the commission's disposal all information which we are able to gather regarding the scientific application of activity as a therapeutic agent in the treatment of the mentally ill. This would obviously involve the research, adaptations of activities, motivational techniques and evaluational data developed by the corrective therapists. An advisory resources board has been appointed by this association to assist in this project, but the board cannot be expected to accomplish its purpose without the cooperation of corrective therapists everywhere. It is urgently requested that if you believe that you can make a contribution to this effort that you contact our permanent representative to the Joint Commission, Dr. John Eisele Davis.

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## NOVEMBER VICTORY

The professional in rehabilitation is constantly confronted with problems specifically related to the geriatric and cardiac patient. Certainly one of the imponderables which must be faced is the prevailing attitude of society and employer toward acceptance of the elderly and the cardiac as employees who can actively participate in productive enterprise on the competitive basis demanded today.

Although a problem of this nature is a very real one to those closely associated with medicine and rehabilitation, it is most unusual when such a problem becomes a great public issue. The recent election, however, offered this unparalleled example when the President's age and health were interjected into the campaign. Although there were other issues involved,

(Cont'd on Page 202)

## Book Reviews

**"Neurology and Psychiatry in Childhood,"** Volume 34. (Baltimore: Williams & Wilkins Co. 1954. 504 pp. \$11.00)

This is one of the yearly reports of the Proceedings of the Association for Research in Nervous and Mental Disease, and is composed of the following sections: Infections of the C.N.S., Developmental and Traumatic Aspect, Functional and Degenerative Disturbances, Roentgenographic Aspects, Psychiatric Aspects, Symposium on Juvenile Schizophrenia. Leading authorities in the above fields give a clear, concise and scientific presentation of their individual fields of research. Sound scientific thinking relating theoretical and clinical studies to basic problems is presented. Progress in child neurology and psychiatry, as well as projected problems for future research, is adequately described. The discussion following each presentation is of the Association for Research in Nervous and Mental Disease recognized authority. As with other monographs originating from this Association, a high professional level of material is maintained throughout the volume. For the pediatrician, neurologist and others interested in recent research in juvenile neuropsychiatric problems, this book is a "must." The psychiatrist will find the section on childhood schizophrenia, though brief, of particular interest. However, the volume principally deals with child neurology rather than psychiatry. Sixty-three illustrations, 21 tables, an index and a list of members of the Association are included.

—DCL

**"The Hostile Mind,"** by Leon J. Saul. (New York: Random House, 1956. 211 pp. \$3.50)

The author has written a fine book concerning a basic emotion that not only affects the individual involved but very often has disastrous consequences upon his immediate community and at times, the whole of society. Hostility is discussed in relationship to the biological processes of the individual; how it is injected into politics and religion; its mechanisms and its preventatives and cures. The book appears to be written for popular appeal, but it is too technical for the average layman and too elementary for the trained members of a psychiatric team. It will prove most valuable to the student or resident in psychiatry and related fields.

—HJB

**"The Psychosomatic Aspects of Cancer,"** by Harold E. Simmons. (Washington, D. C.: The Peabody Press, 1956, \$1.00). Paper.

This monograph deals with the possible psychomatic etiology of cancer, the hypothesis being that most cancer is caused by emotional stress, which produces glandular over-production. This continual barrage of tissue by malfunctioning glands starts cell proliferation, resulting in cancer. This reviewer certainly agrees that the psychosomatic etiology of cancer should be explored. He wonders, however, if the difficulties of determining which is the cause and which is the effect makes this problem insurmountable. The writer is not entirely objective; he has accumulated a great deal of literature supporting his hypothesis and has ignored literature refuting it. If cancer is produced by emotional stress, do the lower vertebrates have similar emotional stresses which produce cancer in their bodies? The dinosaurs had malignancies of bone but it would be difficult to prove similar emotional stress in their lives. Cancer of the thyroid is more common in a hyper-functioning gland, which is generally felt to be caused by psychic trauma, but to place the guilt of all or even most of cancer on psychic disturbance is not a scientific approach.

—ELS

**"Sports Injuries Manual,"** by Donald F. Featherstone. (New York: Philosophical Library, Inc., 1956. 132 pp. \$6.00)

This publication is an import from Great Britain and is designed for the individual who lacks a background in athletic training but who is trying to furnish some sort of amateur assistance to members of athletic teams. The first two chapters, on basic anatomy and physiology, might well have been omitted. They are too sketchy to be useful to such an individual and he could better have been referred to standard texts. The instructions on the first aid kit and the treatment environment are standard, but the chapter on "The Prevention of Sports Injuries" stresses a highly important subject all too often ignored in American books. The second half of the manual deals principally with the treatment of various types of athletic injuries. Generally speaking, the procedures recommended are conservative in nature, with considerable emphasis on the value of progressive resistance exercises and far less attention to taping than is true of American texts. Some of the proprietary names mentioned will be unfamiliar to readers on this side of the Atlantic. The book is a useful introduction to the subject. However, it is quite small and is printed on the poor quality of paper and enclosed in the inferior binding characteristic of British publications. For such an item a price of \$6.00 is exorbitant and prevents its being recommended.

—PJR

**"A Study of Work Efficiency of Blind and Sighted Workers in Industry,"** by Douglas Cortland MacFarland. (New York: American Foundation for the Blind, 1956. 58 pp., 70c) Paper.

In this pamphlet, the author presents a statistical survey and analysis of the work efficiency of blind versus sighted industrial workers. Matched pairs of workers—one sighted and one blind—performing identical job operations were measured for the following factors in work efficiency: intelligence, finger dexterity, and hand coordination. Other components taken into consideration were annual earnings, production (quality and quantity), absenteeism, tardiness, and accident rate. There were a limited number of subjects available (38 blind) and these were engaged in a large variety of industrial positions. Results of the study indicate that although the sighted workers' performance in manipulation and assembly tests was somewhat better, both groups had similar scores in production quality and quantity. Absence, tardiness and safety records of the blind were far superior. This is a rather detailed study of a very small sample. The reviewer feels that the information presented will be of interest only to those dealing directly with vocational training of the visually handicapped.

—FJK

**"The Nurse and the Mental Patient,"** by M. S. Schwartz and E. L. Shockley. (New York: Russell Sage Foundation, 1956. 289 pp. \$3.50)

Subtitled "A Study in Interpersonal Relations," this small volume fills a very real need for an informative guide to interpersonal relations in a clinical setting between nurse and mental patient. The book is divided into two sections. Part One includes recurring problem situations, with chapters on fear and patient assaultiveness, the demanding, the withdrawn, the hallucinating, the incontinent, the suicidal, the extremely anxious, and the patient whose behavior has a sexual connotation. Part Two considers interpersonal processes common to problem situations, covering understanding, communicating and relating with the patient.

The major importance of this book is the method of presentation of the text material. Detailed discussion between the nursing staff and the psychiatric service stresses the "feelings," both conscious and unconscious, of the nurses and the projection of such feelings into the nurse-patient relationship. In this reviewer's opinion this volume is practical, interesting, and should be a "must" for all individuals dealing with the mental patient. For the medical student it presents, in simple form, the basic principles so necessary for mature doctor-patient relationship. An adequate index completes this outstanding book.

—DCL



**"Heaven and Hell," by Aldous Huxley.** (New York: Harper & Brothers, 1956. 103 pp. \$2.00)

It is Huxley's thesis that by hypnosis or by altering the chemical composition of the body through the use of mescaline (the active ingredient in peyote), breathing exercises, singing, diet, fasting, carbon dioxide, etc., it is possible to depress cerebral functioning and permit the apprehension of mental events which are normally excluded from the mind. Religious rituals, secular ceremonies and the various arts manipulate sound, light, color and shape to achieve the same end. From such experiences are drawn the fairylands and mythological figures of our cultural literature. The healthy individual experiences sensations of bliss in such visions, but the ill or psychotic finds only horror. "The world of the psychotic," says the author, "closely resembles the descriptions of the world of the dead found in early religious tradition." This monograph requires only a short time to read, but its insights should illuminate large areas of human culture for the rest of the reader's life. No one who is interested in attempting to understand the world in which he lives can afford not to read it. It is a pity that the book is not illustrated with reproductions of some of the artistic materials which Huxley describes.

—PJR

**"Sweden: The Welfare State" by Wilfrid Fleisher.** (New York: The John Day Company 1956. 255 pp. \$4.00)

The author presents an objective picture of the internal affairs of the welfare state of Sweden. He shows the historical development of the Social Democratic Party and the labor movement and how they enhanced the growth of the welfare program. He outlines the objectives and affairs of the consumers' co-operatives and their relationship with private enterprise. The housing program is reviewed and analyzed, as is compulsory health insurance, child welfare, care of the aged and prison reform. The author then describes methods of taxation to pay for welfare. In conclusion, an appraisal and evaluation is made of the complete program.

The material presented is current and vital. It is a tremendous experiment in welfare that is being watched with a curious eye by the rest of the world. The reviewer is aware of two specific areas of the Swedish program, that of prison reform and the care of the aged, that is being studied here in our own country.

The book is extremely well written, easy to understand and interesting from the very first to the last page. The volume is a must for all people interested in an experimental welfare approach that is said to be designed for the improvement of the standards of humankind.

—HJB

**"The Poor Man's Guide to Europe," by David Dodge.** (New York: Random House. Revised Edition, 1956. 308 pp.)

Corrective therapists, school teachers and other professional people employed in the public service are apt to combine the educated man's desire to tour Europe with a pocketbook which seemingly allows for no such frivolities. If you fall into this class, this is the book for you. It tells nothing of what to see or where to sleep and eat in Europe; its sole purpose is to explain how to get there, stay a while, and then return, all with the least possible outlay of cash. The basic formula is simple enough: go in the off season, buy foreign currency at the most favorable rates, and avoid the de luxe establishments. Each of these items, however, requires a certain amount of "know how," and the reviewer knows of no easier way to obtain that "know how" than to read this book. The style is very entertaining (made more so by amusing drawings by Irv Koons) and the suggestions offered are as definite as anything of this type can be. Don't decide before reading it that you cannot afford to go to Europe. It has encouraged this reviewer to think that perhaps he too may make such a trip. When he does, a copy of the latest edition of Dodge's guide will be his *vade mecum*.

—PJR

**"Present Knowledge in Nutrition," Second Edition.** (New York: The Nutrition Foundation, Inc., 1956. 130 pp. Paper bound.)

Probably every corrective therapist with the slightest interest in nutrition is already familiar with the very useful *Nutrition Reviews*. *Present Knowledge in Nutrition* is composed of pages originally published in that journal and since revised in the light of current research. Each of the twenty-seven chapters is devoted to a single topic—Protein, The Minerals, The Relation of Nutrition to Dental Caries, etc. On the whole, the reader learns that while certain amounts of vitamins, minerals, and other foodstuffs are essential in the diet, increasing these quantities does not result in gains in strength, hypertrophy or endurance. The chapter on protein contains no theoretical justification for the protein supplements now so popular with the body builders, although the admission that the optimum quantity of proteins to be provided to man has not yet been established leaves the question still open. Vitamin E has failed to prove of benefit in muscular dystrophy and it is reported that attempts to demonstrate the value of tocopherol in the treatment of various heart conditions have been consistently negative. Vitamin B<sup>12</sup> appears to have little effect on the growth of children. The effects of the administration of pantothenic acid upon the strength of normal muscles does not appear to have been studied. With the exception of fluoridation, which is hailed as "undoubtedly the most striking contribution to preventive dental medicine that has ever been made," it seems difficult to justify the addition of dietary supplements to a well balanced diet. The busy reader who wants a quick summary of recent experiments in the field of nutrition will find this a handy and comprehensive manual.

—PJR

**"James Parkinson, 1775-1824," Edited by MacDonald Critchley.** (New York: St. Martin's Press, 1955. 268 pp. \$4.50)

James Parkinson's "An Essay on the Shaking Palsy" has long been accounted a classic of medical writing. Although reprinted from time to time, it has been difficult to obtain a copy in any form during the last several years. The text has now been made available to all by its being reprinted in this book. With it is a surprisingly detailed biography of Parkinson, written by W. H. McMenemey; a discussion of "The Pathology of Parkinson's Disease," by John G. Greenfield, and "A Clinical Analysis of the Paralysis Agitans Syndrome," by F.M.R. Walse. Few, indeed, are the corrective therapists who have not had contact with patients suffering from this disease. Those interested in learning something of the man who gave his name to the disease, in reading the monograph upon which his fame is partly based, and in studying the causes and characteristics of the disease will find this volume of interest.

—PJR

**"Thoracic Surgery for Physiotherapists," by Gladys M. Storey.** (Philadelphia: J. B. Lippincott Company, 1955. 132 pp. \$3.00)

Here is a book designed for the physiotherapist with a special type of patient. The author, a trained nurse as well as a physiotherapist, has divided her material into two parts: Section I presents the anatomy, physiology and pathology of the conditions to be encountered, and offers a background for Section II, which deals with "Conditions for Which Surgical Treatment May Be Indicated." The contents are well organized, comprehensively outlined and of adequate scope for the therapist or nurse concerned with the rehabilitation of patients recovering from thoracic surgery. The outstanding recent advances in chest surgery and application by the therapist of the principles described in this book offer a positive approach to the rehabilitation of the patient in the shortest possible time.

—MLB



**"Student Handbook for Adapted Physical Education,"** by Gene A. Logan, James G. Dunkelberg, Gerald W. Gardner and Glen H. Egstrom. (Los Angeles: Abadon Press, 1956. 54 pp. \$1.00)

This booklet, one of whose authors (Dunkelberg) is a corrective therapist, is designed specifically to provide a guide for students enrolled in Adapted Physical Education at UCLA. However, it is written in such a manner that it may be readily employed at any institution having such a program. The Introduction contains a definition of Adapted Physical Education and an explanation of its objectives, based on the AAHPER statement. This is followed by muscle charts and a number of pages illustrating and describing exercise routines for various portions of the body. The second half of the book contains brief instructions for archery, badminton, golf, volleyball and other sports in which the handicapped individual will find recreational values. So far as the writer is aware, this text is unique in its field. It has been his observation that the biggest single cause for failure in adapted physical education programs is that the programs are not presented in a way which secures the students' interest and cooperation. This text represents a long step forward in making such a program meaningful to those most affected by it. The inexpensive price puts it within the means of every institution. The booklet is highly recommended to any school or college trying to put its adapted physical education program on something other than a hit-or-miss basis. **PJR**

**"Mental Health Planning for Social Action,"** by George S. Stevenson. (New York: McGraw-Hill Book Co. Inc., 1956. 358 pp. \$6.50)

This book contains a worthwhile amount of information concerning psychiatric services offered in the United States. The author gives a fairly detailed report on the psychiatric treatment afforded by County, State, Veterans Administration and U.S. Public Health Services. He describes mental disorders and tells of the various preventative methods provided through public health, and the associated role of mental health in the home, church, school, military services, work and recreation. He also considers the problem of mental health for the child, the delinquent, the criminal, the mentally deficient and the aging. The book is very well written and contains many statistical reports, as well as much practical and objective information, but will appeal only to professional and lay people who are deeply concerned with the problems and challenge of mental health. Unfortunately, it is necessary to note a glaring error that should be corrected in any further printings of the book. Under "Visual Aids," on page 323, the film "Activity for Schizophrenia" is listed, with the following description:

Shows how physical therapists under the guidance of psychiatrists establish interpersonal relationships through intensified physical activities and motivate patients from lower levels of activity to more socialized levels.

This film was made specifically to show the role that the **Corrective Therapist**, not the physical therapist, plays in the treatment of the psychotic patient.

—HJB

**"Workshop for Teachers of Deaf-Blind Children"** (New York: American Foundation for the Blind, 35 pp. 1956. \$0.40. Paper)

This publication summarizes a conference held by the American Foundation for the Blind, to disseminate information and improve instruction for deaf-blind pupils. The handicapped child is likely to be emotionally disturbed as well as physically disabled, presenting specialized problems—social adjustment, personal skills, and schooling. Teaching methods are divided into three categories: experience training, language development, and speech development. Spontaneous speech, demonstrating that the child has learned to use language, is the greatest goal in the educational program. It is important that the parents of deaf-blind children have a good concept of the teaching material and teach the child to tie his shoes, play with other children and perform simple tasks. Evaluation of the deaf-blind child's progress and potentialities should be made by a professional team—physicians, psychologists, therapists,

caseworkers, and teachers—at regular intervals. Traditional methods of teaching are adequately discussed, but the reader becomes aware that a scientific basis for these methods is lacking. **—FJK**

## BOOKS RECEIVED

**"The National Vitamin Foundation; Report to the Board of Governors by the Scientific Director."** (New York: June, 1956. 73 pp. Paper.)

Contains summaries of 1955 research publications.

**"Health and Physical Education Microcards,"** 15 October 1956 Supplement to 1 November 1955 Bulletin. (Eugene: University of Oregon. 8 pp.) Paper.

Lists recent microcard publications in health, physical education, recreation, and allied arts.

**"Dictionary of Poisons,"** by Ibert and Eleanor Mellan. (New York: Philosophical Library, 1956. 150 pp. \$4.75).

This is primarily a first aid manual. In non-technical terms it discusses various poisons, possible causes of poisoning, symptoms and treatment. Its greatest use will probably be as a handy refresher for first aid instructors.

—PJR

Publishers are requested to mail all review copies to Philip J. Rasch, Ph.D., 561 Erskine Dr., Pacific Palisades, Calif.

## Chapter Activities

(Copy for this column should be mailed to Mr. Charles E. Castle, Chapter Chairman, Clinton Road, Rte 3, Chillicothe, Ohio, or directly to the Editor.)

### Southeastern Chapter

The Southeastern Chapter held its seventh annual scientific and clinical conference, October 26 and 27 at the Veterans Administration Center, Jackson, Miss., and at the University of Mississippi Medical School and Hospital. The conference had as its theme, "Present Day Trends in the Management and Treatment of the Medical, Surgical and Neuropsychiatric Patient" and included the following program:

#### OCTOBER 26

**Rehabilitation Problems of Surgical Patients** (Chairman, J. Harold Conn, M.D., Chief, Surgical Service, VAC, Jackson, Miss.)

"The Neurosurgical Patient, His Problems of Management, Treatment and Care"—Orlando J. Andy, M.D., Director, Department of Neurosurgery, University of Mississippi Medical School.

"Bilateral High Thigh Amputations for the Rehabilitation of Selected Paraplegics"—J. Harold Conn, M.D.

**The Management and Treatment of the Medical Patient** (Chairman, John F. Bussey, M.D., Chief, Medical Service, VAC, Jackson, Miss.)

"Management of the Cardiac Patient from the Standpoint of the Corrective Therapist"—Leon Elson, M.D., Assistant Chief, Medical Service, VAC, Jackson, Miss.

"Some Problems of the Aged and Aging"—John F. Bussey, M.D.

"Corrective Breathing Exercises in Patients with Bronchial Asthma and Obstructive Pulmonary Emphysema"—Robert J. Walsh, M.D., Chief, Allergy Section, VAC, Jackson, Miss.

"Chest Breathing Exercises"—Lester P. Burrowes, Corrective Therapist, Jackson, Miss.

**The Rehabilitation Program in Civilian Neuropsychiatric Hospitals**—W. L. Jaquith, M.D., Director, Mississippi State Hospital, Whitfield, Miss.

**European Trends in Physical Medicine and Rehabilitation**—Ferdinand F. Schwartz, Director of the Schwartz Clinic, Birmingham, Ala.

OCTOBER 27

*The Concept of Treating the Patient as a Holistic Process—*  
D. S. Pankratz, M.D., Dean, University of Mississippi Medical School.

*Bridging the Gap Between Hospital and Community*  
(Chairman, William S. Alyea, Chief, PM&RS, VAC, Jackson, Miss.

#### Speakers

Miss Louise Holmes, R.N.  
Mrs. Esther Elias, R.N.  
Jessie B. Rhinehart, Ph.D.

Eloise C. Abercrombie  
William S. Alyea, M.D.

Lester P. Burrows, President of the Southeastern Chapter, represented the organization in the opening ceremonies; Phil Davis, Executive Assistant, PM&RS, VAH, Augusta, Ga., acted as master of ceremonies at the banquet held October 26 at which Dr. John E. Davis, President Elect, APMR, was guest speaker on the subject, "The One World of Medical Rehabilitation," John M. Hawk was convention chairman for the conference.

#### Ohio-Kentucky Chapter

The Ohio-Kentucky Chapter of the Association for Physical and Mental Rehabilitation, in conjunction with the Ohio Valley Chapter of the American Association of Rehabilitation Therapists, held its Fall Conference at the Dayton State Hospital, Dayton, Ohio on Saturday, November 3, 1956.

The group was welcomed to the hospital by Dr. J. A. Mendelson, Superintendent of the hospital. During the morning sessions, Dr. L. P. Ristine, Ohio State Commissioner of Mental Health, discussed "The Role of the Therapist in the Rehabilitation Program of the Long Term Psychiatric Patient." Following this discussion, a staff member of the Dayton State Hospital showed a half hour movie on "Rehabilitation Practices at the Dayton State Hospital." The remainder of the morning session was then devoted to a panel on "Ideal Therapy" with Dr. Leo Rosenberg, Chief PMRS at the Dayton VAH, acting as panel moderator. Robert L. Davis, Corrective Therapy Supervisor, Chillicothe VAH, was one of the panel members. The afternoon session began with a panel on "The Coordination of Counseling Psychology and Physical Medicine," which was moderated by Don D. Allison, President of the Ohio Valley Chapter of the AART.

Following lunch, separate business of the participating chapters was conducted to conclude the program. Mr. Art Landy, President of the Association for Physical and Mental Rehabilitation, gave an interesting report on his activities and the progress of the association during the past five months. The outgoing president, George Jurcisin, presented the new chapter president, Robert Kohler, who presided during the election of officers, and then adjourned the group. Mr. Charles Hayes was elected President Elect, and Mr. Bill Walsh was elected Secretary-Treasurer, replacing John Murphy.

#### EDITORIAL — Cont'd from Page 198

his political opponents were convinced that the negative aspects of the President's situation would offset the factors of his personal popularity and his claims (and those of his doctor's) that he was fit for the job.

There have been a number of analyses of the landslide of votes that swept Mr. Eisenhower back into office but certainly this astounding victory could not have been accomplished if the majority of the American public had been totally unwilling to accept the rehabilitation ideal to which all of us in the field are dedicated.

## News and Comments

#### RECORD AWARD FOR FORT LYON

The largest incentive award in the history of Veterans Administration has been presented to the employees of the VA Hospital at Fort Lyon, Col. The award of \$4,360 was presented by Dr. William S. Middleton, VA Chief Medical Director in a special ceremony at the hospital November 12. VA said the money will be given in \$10 shares to the 436 employees of the hospital who were on duty six months or more as of May 2, 1956. In addition, each employee will receive a certificate of commendation.

Dr. Middleton pointed out that Ft. Lyon earlier this year was presented the Achievement Award of the Year by the American Psychiatric Association for showing the most improvement in patient care of any hospital in the United States during 1955.

#### DR. HOUTCHENS APPOINTED

H. Max Houtchens, PhD, of Washington, D.C., has been appointed chief of the Veterans Administration clinical psychology division in central office at Washington, Dr. William S. Middleton, Chief Medical Director, announced. Dr. Houtchens succeeds H. M. Hildreth, PhD., who has accepted an appointment with Public Health Service.

Before his appointment to VA's top clinical psychology post, Dr. Houtchens had served as chief consulting psychologist to VA's clinical psychology division in the psychiatry and neurology service in Washington. His nomination was made by Dr. J. F. Casey, director of psychiatry and neurology.

Dr. Middleton said the clinical psychological program, instituted 10 years ago in the VA Department of Medicine and Surgery, has made valuable contributions to research, mental hygiene and clinical evaluations, as well as assisting in the care and treatment of veteran-patients.

Dr. Middleton added that VA has pioneered in the establishment of a large training program for clinical psychologists and has achieved a position of preeminence in this field. "We plan to give every necessary support in order to maintain our position because of our great need for the help that clinical psychologists give us in this area of veteran care," Dr. Middleton said.

Dr. Houtchens was born January 6, 1911 in Waitsburg, Washington. He received his BS degree from the University of Idaho in 1932; his MA degree from the University of Iowa in 1935, and his PhD degree from the University of Iowa in 1937. From 1936 to 1937, Dr. Houtchens was director of the Mental Health Service in Des Moines; from 1937 to 1942, Consultant Psychologist for the state of Washington at Olympia, and from 1942 to 1946, director of the Des Moines Guidance Clinic, including military leave for three years when he served in service command headquarters and in the Asiatic-Pacific Theatre of Operations.

Dr. Houtchens joined VA in 1946 as chief psychologist in the former branch office at Seattle. When the branch offices were terminated in 1949, he was transferred to VA central office as assistant chief clinical psychology. He later was appointed chief consulting psychologist.

Dr. Houtchens has held appointments with the University of Washington, Catholic University, Howard University and the University of Maryland. He is a Fellow in the Divisions of Personality and Social, Clinical, Consulting, Counseling and Military Psychology of the American Psychological Association. He is also a diplomate of the American Board of Examiners in Professional Psychology.

#### DR. KNUDSON HEADS REHABILITATION GROUP

Dr. A.B.C. Knudson, director of the physical medicine and rehabilitation service of the Veterans Administration in Central Office at Washington, D.C., is the first VA psychiatrist to head the American Congress of Physical Medicine and Rehabilitation. Dr. Knudson assumed the duties of president at the recent meeting of the Congress in Atlantic City. He was president-elect during the preceding year. The eighth annual VA Luncheon was held during the conference and was attended by over 100 VA physicians specializing in the field of rehabilitation.

Before entering the field, Dr. Knudson practiced psychiatry. He is a fellow of the American Psychiatric Association. He holds teaching appointments in physical medicine and rehabilitation at the George Washington University School of Medicine and the Georgetown University School of Medicine in Washington, D.C. He also holds offices in a large number of medical organizations. A lieutenant colonel in the Medical Corps of the U.S. Army Reserve, Dr. Knudson has served since 1950 as director of the medical branch of the District of Columbia Army Reserve School. He has been a member of the Association of Military Surgeons of the United States since 1944. His previous assignments with VA were at the VA hospitals in Minneapolis, Minn.; St. Cloud, Minn.; Battle Creek, Mich., and Dwight, Illinois.

Dr. Knudson received his M.D. from the University of Minnesota Medical School in 1939 and interned at St. Mary's Hospital in Minneapolis. He was certified as a Diplomate of the American Board of Physical Medicine and Rehabilitation in 1947, the first year that this board held examinations for certification. Since 1949, he has become an official member of the board itself.

He is a Fellow of the American College of Physicians, the American Medical Association, the Industrial Medical Association, and of the American Academy of Physical Medicine and Rehabilitation. He is a member of the District of Columbia Medical Society and several other medical associations.

#### CORRECTIVE THERAPISTS ON CONGRESS PROGRAM

Five corrective therapists were invited to attend the annual conference of the American Congress of Physical Medicine and Rehabilitation as co-authors of papers read before that organization. The therapists included Earl Raymer and Mark W. Ullman of Crile VAH, Cleveland, who co-authored "Physical Fitness Studies in Hospitalized Diabetic Patients" with Dr. Harry T. Zankel, Chief, PM&RS, and Charles E. Willhite, Rudolph Jahn and James P. Sheridan of Long Beach (Calif.) VAH, who co-authored "Horizontal Leg Press Exercise" with Dr. Roy H. Nyquist, Chief, PM&RS. The conference was held during the week of September 10th at Atlantic City, N. J.

#### Patronize Our Advertisers

##### POSITION VACANCY

The New Jersey Neuro-Psychiatric Institute has a vacancy for the position of Director of Recreation Therapy. Qualifications include education and experience in the field of recreation therapy particularly as applied to psychiatric patients. The Institute is a 1200-bed State supported institution specializing primarily in the treatment of children, male alcoholics, selected epileptics and others.

Salary range for this position is \$4200 to \$4920. Interested persons should contact Dr. E. Calvin Moore, Assistant Medical Director, New Jersey Neuro-Psychiatric Institute, Box 1090, Princeton, N. J.

#### IN MEMORIAM

John J. Sellwood, Ph. D. (1917-1956)

Dr. John J. Sellwood, associate professor of physical education at the University of California at Los Angeles, died October 5 of cancer at Wadsworth General Hospital.

Dr. Sellwood was highly regarded in his profession and gave much of his free time to work with physically handicapped children. He was a consultant to the Los Angeles County Crippled Children's Society and program director of Camp Paivika. He was also active in Boy Scout work and in the activities of the Holy Faith Episcopal Church, Westchester.

Dr. Sellwood was born and raised in Portland, Oregon and began college at Oregon Normal School, later transferring to San Diego State College where he was graduated in 1941. He earned an M.S. degree in education from the University of Southern California and his doctorate in education at UCLA. He was a varsity basketball player at San Diego State and became well known in the Los Angeles area as a high school basketball official. He served in the Navy from 1942 to 1945 and at the time of his discharge from service, he was a lieutenant, junior grade.

Dr. Sellwood was a member of Phi Delta Kappa, national education fraternity; Phi Epsilon, national physical education fraternity; the National Education Association; the Association for Physical and Mental Rehabilitation; the Association for Student Teaching; and the American Association for Health, Physical Education and Recreation.

He is survived by his wife, Mary, and two sons, Michael, 12, and Jeffrey, 10.

#### REHABILITATION CENTER INSTITUTE

The Conference of Rehabilitation Centers, Inc., has announced an Institute on Rehabilitation Center Planning to be held at the Morrison Hotel in Chicago from February 25 through March 1, 1957. The Institute will be open to all persons interested in the establishment, expansion or improvement of comprehensive rehabilitation facilities and is being conducted by the Conference under a training contract with the U. S. Office of Vocational Rehabilitation.

Inquiries concerning the Institute should be addressed to the Division of Special Projects, Conference of Rehabilitation Centers, Inc., 5 Franklin Avenue, Saranac Lake, New York.

**Give To The Scholarship Fund**



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Dodge, D. 10:200, Nov. (BR)  
Doggart, J. H. 10:99, May (Abs)  
Donofrio, A. F., Lombard, J. P. & Gilbert, J. G. 10:162, Sept. (Abs)  
Dorpat, T. L. & Holmes, T. H. 10:136, July (Abs)  
Dubuisson, M. 10:61, March (BR)  
Dunkelberg, J. G., Logan, G. A., Gardner, G.W. & Egstrom, G.H. 10:201, Nov. (BR)  
Durnin, J.V. & Mikulvic, V. 10:136, Nov. (Abs)

—E—

- Eastwood, F. R. 10:21, Jan. (BR)  
Eccles, M. V. 10:56, March (Abs)  
Edholm, O. G. & Pugh, L. G. C. 10:56, March (Abs)

Egstrom, G. H., Logan, G. A., Dunkelberg, J. G. & Gardner, G. W. 10:201, Nov. (BR)  
 Entralgo, P. L. 10:138, July (BR)  
 Engel, C. 10:161, Sept. (Abs)

#### -F-

Fait, H.F. & Kupferer, H.J. 10:197, Nov. (Abs)  
 Featherstone, D.F. 10:193, Nov. (BR)  
 Fertig, J. W. 10:161, Sept. (Abs)  
 Fleisher, W. 10:200, Nov. (BR)  
 Flexner, A. 10:17, Jan. (Abs)  
 Fox, R. & Lyon, P. 10:164, Sept. (BR)  
 Friend, J. 10:162, Sept. (Abs)  
 Fultz, D. A. & Hess, G. H. 10:136, July (Abs)

#### -G-

Gardner, G. W., Logan, G. A., Dunkelberg, J. G. & Egstrom, G. H. 10:201, Nov. (BR)  
 Gemilli, A. 10:59, March (BR)  
 Gerstein, J. W. 10:163, Sept. (Abs)  
 Gibson, J. R. & Lowe, C. R. 10:18, Jan. (Abs)  
 Gilbert, J. G., Lombard, F. P. & Donofrio, A. F. 10:162, Sept. (Abs)  
 Graham, M. A. & Kramer, H. E. 10:121, July  
 Graham, M. A. & Kramer, H. E. 10:89, May  
 Green, H. D. 10:139, July (BR)  
 Greenblatt, M. 10:1, Jan.  
 Gualano, G. & Selman, D. 10:17, Jan. (Abs)

#### -H-

Haltiwanger, E., Boone, A. W. & Chambers, R. L. 10:17, Jan. (Abs)  
 Harding, D. & Barnett, C. H. 10:162, Sept. (Abs)  
 Harrower, M. 10:60, March (BR)  
 Hawk, G. K. 10:23, Jan. (BR)  
 Heaslet, R. B. 10:109, July  
 Hellebrandt, F.A. & Houtz, S.J. 10:196, (Abs)  
 Herman, E. L. & Clarke, D. H. 10:56, March (Abs)  
 Herold, W. & Blair, H. V. 10:99, May (Abs)  
 Hess, G. H. & Fultz, D. A. 10:136, July (Abs)  
 Hovl. H.L. 10:196, Nov. (Abs)  
 Holmes, T. H. 10:136, July (Abs)  
 Hornibrook, F. A. 10:60, March (BR)  
 Houtz, S.J. & Hellebrandt, F.A. 10:196, (Abs)  
 Huxley, A. 10:200, Nov. (BR)

#### -J-

Jahn, R., Modern, F. W. S., Devins, G. V. & Russey, J. C. 10:130, July  
 Jewry-Hargert, J.M. 10:23, Jan. (BR)  
 Johnson, J. T. H. & Kendall, H. O. 10:18, Jan. (Abs)  
 Johnson, R. C. 10:60, March (BR)  
 Jokl, E. 10:48, March  
 Jokl, E. 10:190, Nov.  
 Jokl, E. & Reich, J. 10:154, Sept.  
 Jolliffe, N. 10:17, Jan. (Abs)

#### -K-

Kendall, H. O. & Johnson, J. T. H. 10:18, Jan. (Abs)  
 Keys, A., Anderson, J. T. & Mikelson, O. 10:135, July (Abs)

Klein, K. K. 10:94, May  
 Klein, K.K. 10:185, Nov.  
 Kramer, H. E. & Graham, M. A. 10:89, May  
 Kramer, H. E. & Graham, M. A. 10:121, July  
 Kranz, L. G. 10:138, July (BR)  
 Krusen, F.H. 10:197, Nov. (Abs)  
 Kupferer, H.G. & Fait, H.F. 10:197, Nov. (Abs)

#### -L-

Lacey, D. L. 10:59, March (BR)  
 Lansing, A. I. 10:162, Sept. (Abs)  
 Layman, E. M. 10:22, Jan. (BR)  
 Leavitt, L. A. & Arena, J. J. 10:116, July  
 L'Etang, H. J. C. J. 10:50, March  
 Lipscomb, E.V. & Becker, F. 10:192, Nov.  
 Logan, G. A., Dunkelberg, J. G., Gardner, G.W. & Egstrom, G.H. 10:201, Nov. (BR)  
 Lombard, J. P., Gilbert, J. G. & Donofrio, A. F. 10:162, Sept. (Abs)  
 London, R.I. 10:156, Nov. (Abs)  
 Lowe, C. R. & Gibson, J. R. 10:18, Jan. (Abs)  
 Lyon, P. & Fox, R. 10:164, Sept. (BR)

#### -M-

MacFarland, D.C. 10:199, Nov. (BR)  
 Mack, P. B. & Dixon, M. S. 10:18, Jan. (Abs)  
 Mackien, P. T. 10:135, July (Abs)  
 Mayer, J., Johnson, M. L. & Burke, B. S. 10:136, July (Abs)  
 Mayer, J., Roy, P. & Mitra, K. M. 10:197, Nov. (Abs)  
 McCoy, C. H. 10:143, Sept.  
 McCarty, J. A. 10:138, July (BR)  
 McDougall, A. 10:99, May (Abs)  
 McMorris, R. O., Worden, R. E., Williams, D. T. & Stacey, R. W. 10:58, March (BR)  
 Mikelson, O., Keys, A. & Anderson, J. T. 10:135, July (Abs)  
 Mikulvec, V. & Durnin, J.V. 10:193, Nov. (Abs)  
 Miller, R. D. 10:165, Sept. (BR)  
 Mitra, K. M., Mayer, J. & Roy, P. 10:197, Nov. (Abs)  
 Modern, F. W. S., Jahn, R., Devins, G. V. & Russey, J. C. 10:130, July  
 Morrison, W. R. & Chenowith, L. B. 10:21, Jan. (BR)  
 Monroe, R. L. 10:139, July (BR)  
 Murray, H. A. 10:138, July (BR)  
 Muybridge, E. 10:58, March (BR)

#### -N-

Negus, V. 10:162, (Abs)  
 Newman, L.B. & Tenner, N.B. 10:114, July

#### -O-

Oolum, D. M. 10:61, March (BR)

#### -P-

Phillips, M. & Weiss, R. A. 10:164, Sept. (BR)  
 Pickering, G. W. 10:56, March (Abs)  
 Podolsky, E. 10:61, March (BR)  
 Poel, R. A. 10:165, Sept. (BR)  
 Pugh, L.G.C. & Edhoim, O.G. 10:56, March (Abs)

#### -R-

Rae, J. M. & Bender, L. F. 10:136, July (Abs)  
 Rapaport, W. 10:56, March (Abs)  
 Rapp, V. W. 10:18, Jan. (Abs)  
 Raymer, E. B., Ullman, M. W., Zankel, H. T. & Chiorian, E. 10:14, Jan.  
 Reagan, C.H. 10:179, Nov.  
 Reich, J. & Jokl, E. 10:154, Sept.  
 Riedman, S.R. 10:23, Jan. (BR)  
 Robinson, D. S. 10:165, Sept. (BR)  
 Rogers, J. S. 10:23, Jan. (BR)  
 Rogoff, J. B. 10:9, Jan.  
 Roy, P., Mitra, K. M. & Mayer, J. 10:197, Nov. (Abs)  
 Rudd, J. L. 10:150, Sept.  
 Rusk, H. A. 10:17, Jan. (Abs)  
 Russey, J. C., Modern, F. W. S., Devins, G. V. & Jahn, R. 10:130, July

#### -S-

Sanders, E. M. & Bell, P. B. 10:35, March  
 Saul, L.J. 10:199, Nov. (BR)  
 Schenker, A.W. 10:197, Nov. (Abs)  
 Schindler, J. A. 10:167, Sept. (BR)  
 Schwartz, M. S. & Shockley, E. L. 10:159, Nov. (BR)  
 Simmons, H.E. 10:199 (BR)  
 Spies, T. D. 10:23, Jan. (BR)  
 Stacy, R. W., Williams, D. T., Worden, R. E. & McMorris, R. O. 10:58, March (BR)  
 State, O. 10:138, July (BR)  
 Stevenson, G.S. 10:201, Nov. (BR)  
 Stewart, H. J. 10:164, Sept. (BR)  
 Storey, G.M. 10:200, Nov. (BR)  
 Strunk, F. R. 10:59, March (BR)  
 Sutton, R. M. 10:18, Jan. (Abs)

#### -T-

Taylor, N. B. & Best, C. H. 10:165, Sept. (BR)  
 Tenner, N. B. & Newman, L. B. 10:114, July  
 Tucker, W. E. 10:135, July (Abs)

#### -U-

Ullman, M. W., Zankel, H. T., Raymer, E. B. & Chiorian, E. 10:14, Jan.

#### -V-

Veith, I. 10:166, Sept. (BR)

#### -W-

Warburg, O. 10:136, July (Abs)  
 Weiss, R. A. & Phillips, M. 10:164, Sept. (BR)  
 White, R. W. 10:139, July (BR)  
 William, D. T., Stacy, R. W., Worden, R. E. & McMorris, R. O. 10:58, March (BR)  
 Williams, J. A. 10:56, March (Abs)  
 Williams, R. J. 10:59, March (BR)  
 Woolf, M.H. 10:166, Sept. (BR)  
 Worden, R. E., Williams, D. T., Stacy, R. W. & McMorris, R. O. 10:58, March (BR)

#### -Z-

Zankel, H. T., Raymer, E. B. Ullman, M. W. & Chiorian, E. 10:14, Jan.

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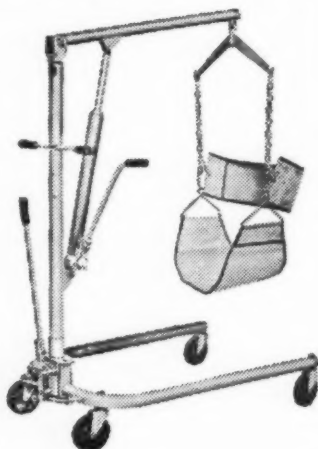
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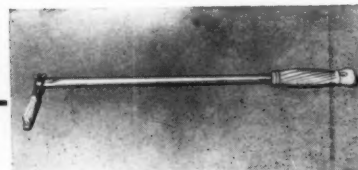
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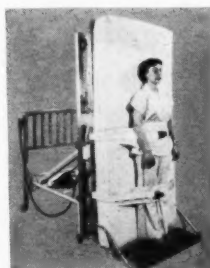
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#### VA NAMES DR. TUCKER

Dr. William B. Tucker, Chief of Medical Service at the Veterans Administration Hospital in Durham, N. C., and Professor of Medicine at Duke University has been appointed Director of the Tuberculosis Service in the Department of Medicine and Surgery at Washington, D. C., VA recently announced. Dr. Tucker, whose appointment will become effective September 1, 1956, will succeed Dr. John B. Barnwell, recently appointed Assistant Chief Medical Director for Research and Education in the VA Department of Medicine and Surgery at Washington.

A teacher, clinician and research worker, Dr. Tucker was born August 17, 1905 in China of American parents. He was graduated from the University of Chicago School of Medicine in December 1934. Following a one-year internship in general medicine at the University of Chicago clinics, Dr. Tucker completed a 31-month residency in pulmonary diseases at the same clinics in 1939.

He first was appointed a consultant in tuberculosis at the VA hospital in Minneapolis, Minn., on November 25, 1946, and this appointment was converted to a full-time position in the VA Department of Medicine and Surgery July 27, 1947. Dr. Tucker served as chief of the tuberculosis service at the VA hospital in Minneapolis until September 8, 1955 when he was transferred to the VA hospital at Durham in his present assignment.



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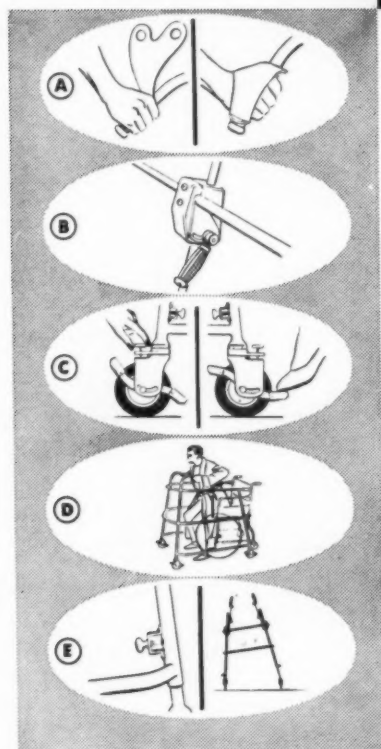
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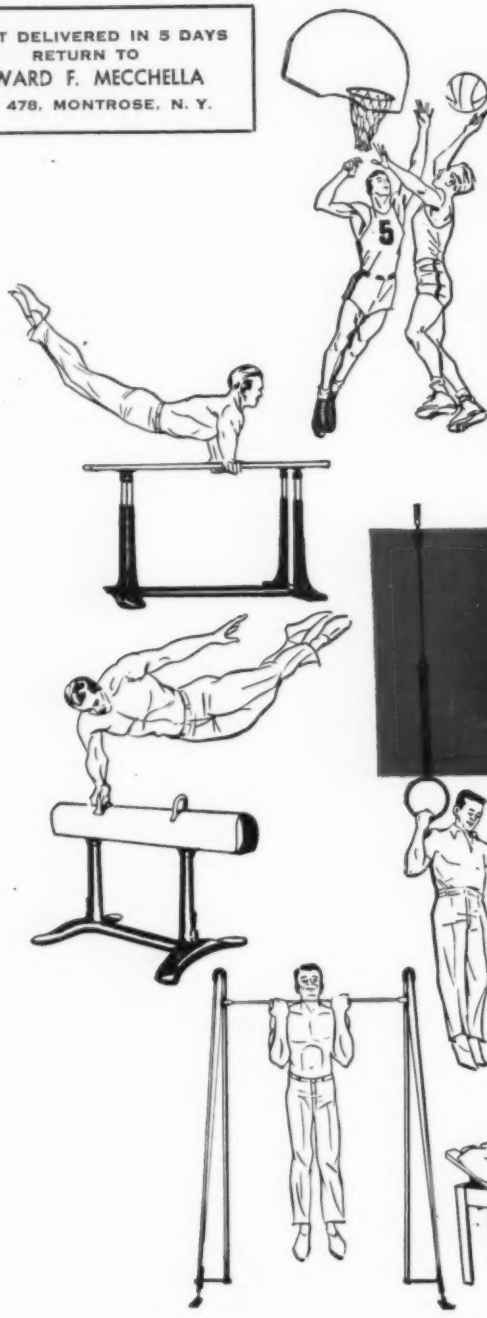
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